United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with Illinois Agricultural Experiment Station

Soil Survey of Johnson County, Illinois

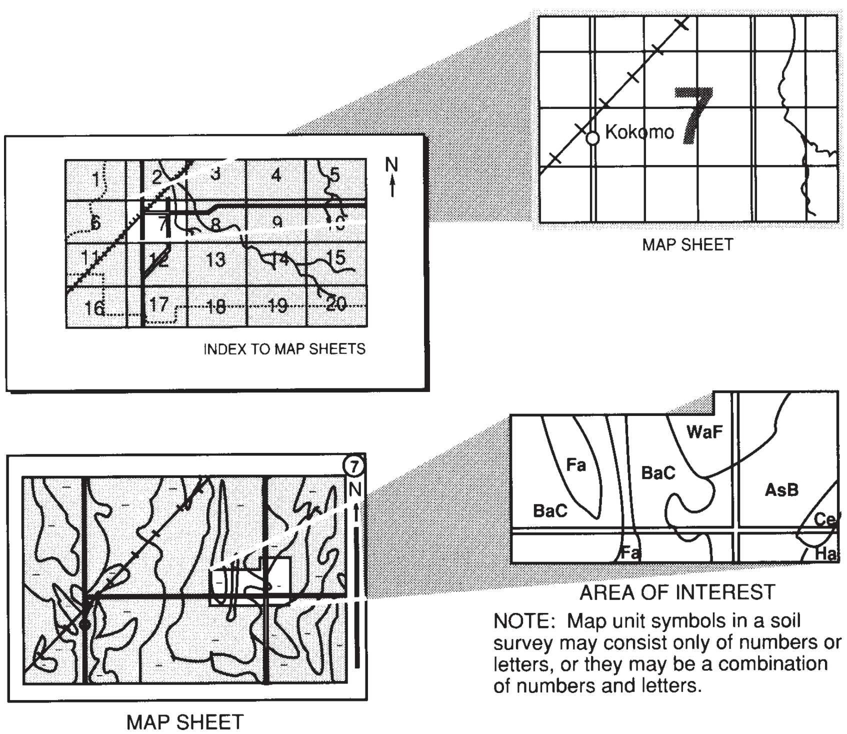
How To Use This Soil Survey

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and go to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Go to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 2000. Soil names and descriptions were approved in 2002. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2002. This survey was made cooperatively by the Natural Resources Conservation Service and the Illinois Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Johnson County Soil and Water Conservation District. Financial assistance was provided by the Johnson County Board, the Illinois Department of Agriculture, and the United States Department of Agriculture, Forest Service. Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Nondiscrimination Statement

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

Contents

Issued 2009

Foreword

This soil survey contains information that affects land use planning in Johnson County. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

This soil survey is designed for many different users. Farmers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations that affect various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

William J. Gradle
State Conservationist
Natural Resources Conservation Service

Soil Survey of
Johnson County, Illinois

By Dwayne R. Williams, Bryan C. Fitch, and Samuel J. Indorante, Natural Resources Conservation Service

Fieldwork for update by Dwayne, R. Williams, Edward C. Workman, Samuel J. Indorante, W. Matt McCauley, and Bryan C. Fitch, Natural Resources Conservation Service

Original survey by J.B. Fehenbacher and R.H. Rust, University of Illinois Agricultural Experiment Station, and W.H. Bender, W.D. Parks, G.O. Walker, and D.L. Wallace, Soil Conservation Service

Classification and correlation of soils by Gary R. Struben, John C. Doll, Dwayne R. Williams, Samuel J. Indorante, Edward C. Workman, Jon D. Bathgate, W. Matt McCauley, and Bryan C. Fitch, Natural Resources Conservation Service

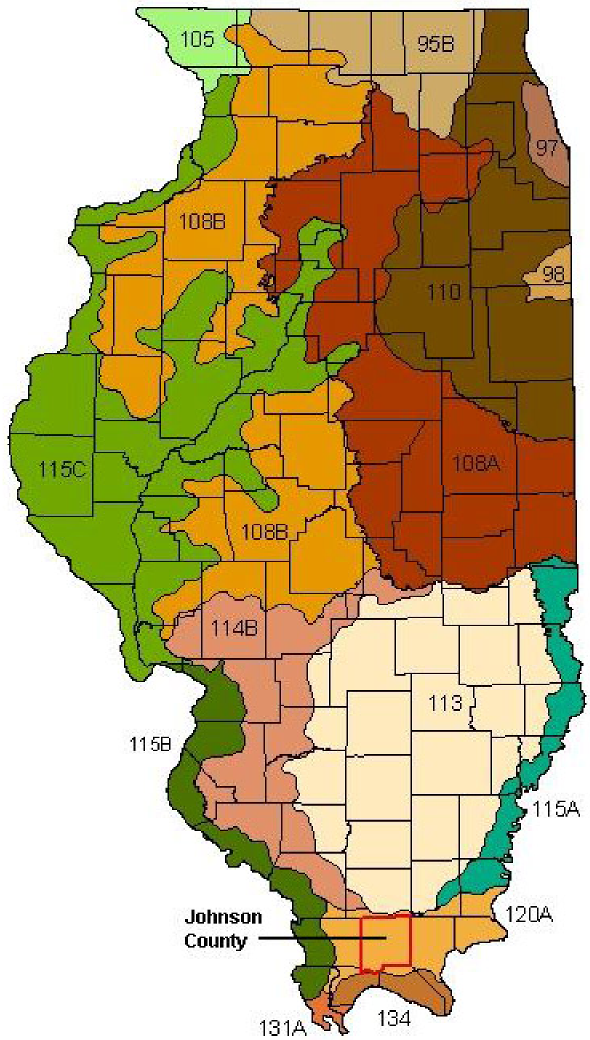
Map compilation and finishing by Bryan C. Fitch, Jacey Jones, and Jon D. Bathgate, Natural Resources Conservation Service, and Dana R. Grantham, Private Contractor

United States Department of Agriculture, Natural Resources Conservation Service,
in cooperation with
Illinois Agricultural Experiment Station

JOHNSON COUNTY is bounded by Pope County on the east, Williamson County on the north, Union County on the west, Saline County on the northeast, Pulaski County on the southwest, and Massac County on the southeast (fig 1). Johnson County consists of small towns, forests, barrens, wetlands, pasture, and cropland. According to the U.S. Census Bureau, the county has a total area of 345 square miles. In 2000, the population of Johnson County was 12,878. Its county seat is Vienna, which had a population of 1,234 people in 2000 *(23)*. Other small towns in the county include Belknap, Buncombe, Cypress, Goreville, New Burnside, and Simpson.

Johnson County is served by two interstate highways, five state highways, and a number of hard-surfaced county roads. There are approximately 636 farms in the county *(23)*. The average farm is 190 acres in size. Most farm owners or operators supplement their income by working off the farm. Along with agriculture, a number of small businesses and industries provide employment in the county. The top four crop commodities by acres are: soybeans, hay, corn, and wheat *(23)*. The top four livestock commodities by number are: hogs, cattle, chickens, and sheep *(23)*. Forested acreage is approximately 80,000 acres *(13)*. The Shawnee National Forest occupies about 18,488 acres in the county, and the Cypress Creek Refuge, managed by the U.S Fish and Wildlife Service, occupies about 597 acres. Recreational activities in the area include camping, boating, horseback riding, fishing, and hunting.

Johnson County was organized in 1812 out of Randolph County. It was named for



95B--Southern Wisconsin and Northern Illinois Drift Plain
97--Southwestern Michigan Fruit and Truck Crop Belt
98--Southern Michigan and Northern Indiana Drift Plain
105--Northern Mississippi Valley Loess Hills
108A--Illinois and Iowa Deep Loess and Drift, Eastern Part
108B--Illinois and Iowa Deep Loess and Drift, East-Central Part
110--Northern Illinois and Indiana Heavy Till Plain
113--Central Claypan Areas
114B--Southern Illinois and Indiana Thin Loess and Till Plain, Western Part
115A--Central Mississippi Valley Wooded Slopes, Eastern Part
115B--Central Mississippi Valley Wooded Slopes, Western Part
115C--Central Mississippi Valley Wooded Slopes, Northern Part
120A--Kentucky and Indiana Sandstone and Shale Hills and Valleys, Southern Part
131A--Southern Mississippi Valley Alluvium
134--Southern Mississippi Valley Loess

Figure 1.—Location of Johnson County and Major Land Resource Areas (MLRAs) in Illinois.

Richard M. Johnson, who was a U.S. Congressman from Kentucky at the time. In 1813, Johnson commanded a Kentucky regiment at the Battle of the Thames, after which he claimed to have killed Tecumseh in hand-to-hand combat. Johnson went on to be Vice President of the United States.

This soil survey updates the survey of Johnson County published in 1964 *(6)*. It provides more descriptive and interpretive information and has larger maps, which show the soils in greater detail.

General Nature of the County

This section gives general information about the survey area. It discusses physiography, relief, drainage, and geology and climate.

Physiography, Relief, Drainage, and Geology

Most of Johnson County lies in the Greater and Lesser Shawnee Hills subsection of the Shawnee Hills section of the Interior Low Plateaus Province. Southern Johnson County along the Cache River is in the Ohio and Cache River Alluvial Plain subsection of the Upper Gulf Coastal Plains section of the Eastern Broadleaf Forest Province *(8)*. Johnson County is in Major Land Resource Area 120A—Kentucky and Indiana Sandstone and Shale Hills and Valleys, Southern Part.

During at least part of the glacial age, the Ohio River flowed more or less from east to west from Golconda, Illinois, to the northern part of Pulaski County and then southwestward through the valley now occupied by the Cache River. The present-day Ohio River Valley was originally the Tennessee River Valley until the silting of the older Ohio valley caused the Ohio River to cut through and divide east of Paducah, Kentucky, and to claim the lower Tennessee valley. During the glacial age, the older Ohio valley was an important source of loess.

Most of Johnson County is drained by a number of creeks that flow south into the Cache River. In northeastern portions of the county, runoff drains north into tributaries of the Saline River. In northwestern portions of county, runoff drains north into the Big Muddy River watershed. The drainage divide which divides the flow of runoff between north and south lies in the north-central part of the county. Elevation along this divide ranges from about 740 feet on the east to 840 feet on the west (fig. 2). The terraces along the Cache River flood plain range from 335 feet to about 345 feet. Ground-water supplies in Johnson County vary from good to excellent on flood plains and terraces, where aquifers of sand and gravel occur at various depths, to poor on the uplands, where consolidated bedrock occurs *(12)*.

Climate

Table 1 gives data on temperature and precipitation for the survey area as recorded at Anna, Illinois, in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 34.6 degrees F and the average daily minimum temperature is 25.4 degrees. The lowest temperature on record, which occurred at Anna on January 12, 1918, was -20 degrees. In summer, the average temperature is 76.4 degrees and the average daily maximum temperature is 87.5 degrees. The highest temperature, which occurred at Anna on July 22, 1901, was 112 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal

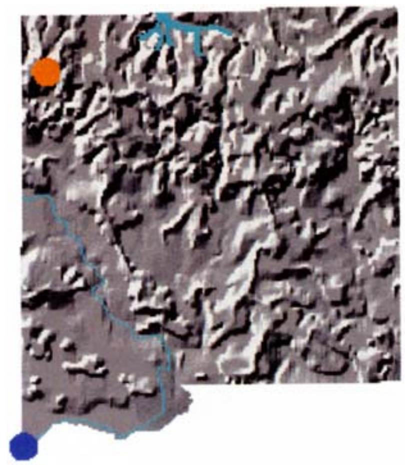


Figure 2.—A generalized relief map of Johnson County showing the highest point, 850 feet above sea level (orange dot), and lowest point, less than 330 feet above sea level (blue dot) at the Cache River.

monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is 47.68 inches. Of this, 27.62 inches, or about 58 percent, usually falls in April through October. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 6.15 inches, recorded at Anna on July 27, 1909. Thunderstorms occur on about 60 days each year, and most occur between May and August.

The average seasonal snowfall is 16.1 inches. The greatest snow depth at any one time during the period of record was 20 inches, recorded on February 25, 1979. On an average, 16 days per year have at least 1 inch of snow on the ground. The heaviest 1-day snowfall on record was 20.0 inches, recorded on February 25, 1979.

The average relative humidity in mid-afternoon is about 58 percent. Humidity is higher at night, and the average at dawn is about 86 percent. The sun shines 68 percent of the time possible in summer and 47 percent in winter. The prevailing wind is from the southwest. Average windspeed is highest, around 9 miles per hour, from November to April.

How This Survey Was Made

This survey was made to update and digitize the 1964 soil survey of Johnson County *(6)*. Johnson County is a subset of MLRA 120A (Kentucky and Indiana Sandstone and Shale Hills and Valleys, Southern Part) (fig. 1). Major Land Resource Areas (MLRAs) are geographically associated land resource units that share a common land use, elevation, topography, climate, water, soils, and vegetation *(20)*. Map unit design is based on each soils occurrence throughout the MLRA. In some cases a soil component may be referred to that does not occur in the Johnson County subset but that has been mapped within the MLRA.

This soil survey includes a description of the soils and miscellaneous areas and their location and a discussion of their properties and the subsequent effects on suitability, limitations, and management for specified uses. During the 1964 soil survey

and as part of this update, soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of soil parent materials. Soil scientists also studied and described soil profiles with the aid of a soil probe or spade. A soil profile is a sequence of natural layers, or horizons, and extends from the soil surface to the unconsolidated material at a depth of about 6 feet. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity. Soil scientists described new soil profile descriptions and studied profile descriptions from previous fieldwork.

The soils and miscellaneous areas in the county occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the county. Each kind of soil and miscellaneous area is associated with a particular kind or segment of the landscape. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landscape, soil scientists develop a concept, or soil-landscape model, of how the soils were formed and the geographic distribution of the soils. Thus, during mapping, this model enables the soil scientists to predict with considerable accuracy the kind of soil or soils at a specific location on the landscape.

Individual soils on the landscape commonly merge into one another as their characteristics gradually change. To construct an accurate map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they observed. The maximum depth of observation was about 80 inches (6.7 feet). Soil scientists noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, soil reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify and interpret soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the survey area generally are collected for laboratory analyses and for engineering tests. Field observations and measurements are also made on selected soils. Soil scientists interpret the data from these analyses and tests, as well as the field-observed characteristics and the soil properties, to estimate the expected behavior of the soils under different uses. Information from other soil surveys and soil studies are also used to develop soil interpretations.

Soils vary across the landscape and with time. Predictions about soil behavior are based not only on how soils occur on the landscape but also on such variables as climate, biological activity, and local land use. Some soil conditions are very stable and predictable over long periods of time. Examples are clay content in the subsoil and cation-exchange capacity. Some soil conditions change rapidly over the course of a year but are still predictable. Examples are monthly soil moisture status within certain depths of the soil profile and monthly depth and duration of ponding in a detailed soil map unit.

Interpretations for some of the soils are field tested through observation of the soils in different uses and under different levels of management. National and regional soil interpretations are modified as necessary to fit local conditions, and some new interpretations are developed to meet local needs. Map unit descriptions, interpretations, and tables for this soil survey were generated using the National Soil Survey Information System (NASIS), version 5.4.

Aerial photographs were taken in 1993. Soil scientists also used U.S. Geological Survey topographic maps enlarged to a scale of 1:12,000 and orthophotographs to relate land and image features. Selected areas of the county were reinvestigated to update and refine local soil-landscape models. Soil boundaries from the 1964 published soil maps were drawn on the orthophotographs. Adjustments of soil boundary lines were made to coincide with the U.S. Geological Survey topographic map contour lines, Digital Elevation Models (DEMs), and tonal patterns on aerial photographs.

The descriptions, names, and delineations of the soils in this survey area may not fully agree with those of the soils in adjacent survey areas. Differences are the result of a better knowledge of soils, modifications in series concepts, or variations in the intensity of mapping or in the extent of the soils in the survey areas.

Detailed Soil Map Units

The map units on the detailed maps represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses. More information about each map unit is given under the headings “Use and Management of the Soils” and “Soil Properties.”

A map unit delineation on a map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils or miscellaneous areas. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils and miscellaneous areas are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to other taxonomic classes.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in the map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans, but if intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. All the soils of a series have major horizons that are similar in composition, thickness, and arrangement. The soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil

phase commonly indicates a feature that affects use or management. For example, Menfro silt loam, 5 to 10 percent slopes, eroded, is a phase of the Menfro series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are undifferentiated groups or complexes.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Muskingum and Berks soils, 18 to 35 percent slopes, is an undifferentiated group in this survey area.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Wellston-Berks complex, 18 to 35 percent slopes, is an example.

This survey includes *miscellaneous areas.* Such areas have little or no soil material and support little or no vegetation. Pits, quarries, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see “Contents”) give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

79B—Menfro silt loam, 2 to 5 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Summit

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Moderately well drained Hosmer soils in the same slope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

79C2—Menfro silt loam, 5 to 10 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Shoulder and backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Moderately well drained Hosmer soils in the same slope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79C3—Menfro silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Shoulder and backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Moderately well drained Hosmer soils in the same slope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79D2—Menfro silt loam, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Moderately well drained Hosmer soils in the same slope positions
- Well drained Wellston soils in lower backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79D3—Menfro silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Moderately well drained Hosmer soils in the same slope positions
- Well drained Wellston soils in lower backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High

Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

79E2—Menfro silt loam, 18 to 25 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Well drained Wellston and Westmore soils on lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.7 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

79E3—Menfro silt loam, 18 to 25 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Well drained Wellston and Westmore soils on lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

79F—Menfro silt loam, 25 to 35 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Menfro and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Well drained Wellston and Westmore soils on lower backslopes

Soil Properties and Qualities

Parent material: Loess
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Potential frost action: High
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

99G—Sandstone and Limestone Rock Land, 35 to 90 percent slopes

General Description

This map unit consists of outcrops of sandstone and limestone interspersed with very stony soils or bouldery soils and vertical bluffs.

Setting

Landform on landscape: Escarpment on upland

Composition

Sandstone Rock Land and similar soils: 45 percent
Limestone Rock Land and similar soils: 40 percent
Dissimilar soils: 15 percent

Inclusions

Similar inclusions:
- Areas that have less than 35 percent slopes

Dissimilar inclusions:
- Well drained Burnside soils on narrow flood plains
- Well drained Berks and Muskingum soils on shoulders and backslopes
- Well drained Weikert and Wellston soils on backslopes

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

164A—Stoy silt loam, 0 to 2 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Summit

Composition

Stoy and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons

Dissimilar inclusions:
- Moderately well drained Hosmer soils in shoulder and backslope positions
- Poorly drained Weir soils on summits

Soil Properties and Qualities

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.0 foot; January to May
Ponding: None
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

164B—Stoy silt loam, 2 to 5 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Summit and shoulder

Composition

Stoy and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons

Dissimilar inclusions:
- Moderately well drained Hosmer soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.0 foot; January to May
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

175A—Lamont fine sandy loam, 0 to 2 percent slopes

Setting

Landform on landscape: Dune in valley
Position on landform: Summit

Composition

Lamont and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Roby soils in lower areas
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Eolian deposits

Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 0.8 to 1.5 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderately high

Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland
Hydric soil: No

175B—Lamont fine sandy loam, 2 to 5 percent slopes

Setting

Landform on landscape: Dune in valley
Position on landform: Summit and shoulder

Composition

Lamont and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Roby soils in lower areas
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Eolian deposits
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 0.8 to 1.5 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Negligible
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderately high

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

175C2—Lamont fine sandy loam, 5 to 10 percent slopes, eroded

Setting

Landform on landscape: Dune in valley
Position on landform: Shoulder and backslope

Composition

Lamont and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have thinner or thicker horizons
- Occasionally flooded areas
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Roby soils in lower areas
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Eolian deposits
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately rapid
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.3 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: Moderate
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Moderately high

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214B—Hosmer silt loam, 2 to 5 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Summit and shoulder

Composition

Hosmer and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Well developed soils with a fragipan that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Stoy soils in summit and shoulder slope positions
- Well drained Menfro soils in shoulder and summit positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 8.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

214C2—Hosmer silt loam, 5 to 10 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Shoulder and backslope

Composition

Hosmer and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Well developed soils with a fragipan that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Stoy soils in summit and shoulder slope positions
- Well drained Menfro soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214C3—Hosmer silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope and shoulder

Composition

Hosmer and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Well developed soils with a fragipan that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Stoy soils in summit and shoulder slope positions
- Well drained Menfro soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 36 inches to a fragipan

Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214D2—Hosmer silt loam, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Hosmer and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Well developed soils with a fragipan that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Stoy soils in summit and shoulder slope positions
- Well drained Menfro soils in backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high

Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

214D3—Hosmer silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Hosmer and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Well developed soils with a fragipan that have a thinner loess cap
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Somewhat poorly drained Stoy soils in summit and shoulder slope positions
- Well drained Menfro soils in backslope positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 20 to 36 inches to a fragipan
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

301B—Grantsburg silt loam, 2 to 5 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Shoulder and summit

Composition

Grantsburg and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils with a less developed fragipan that have a thicker loess cap
- Soils with a fragipan over residuum in more sloping positions

Dissimilar inclusions:
- Soils that have a seasonal high water table at a depth of less than 1.5 feet
- Well drained Alford, Wellston, and Berks soils in more sloping positions

Soil Properties and Qualities

Parent material: Peoria and Roxana loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 24 to 40 inches to a fragipan
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

301C2—Grantsburg silt loam, 5 to 10 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Shoulder and backslope

Composition

Grantsburg and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Less developed soils with a fragipan that have a thicker loess cap
- Soils with a fragipan over residuum in more sloping positions
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Well drained Alford, Wellston, and Berks soils in similar and more sloping positions

Soil Properties and Qualities

Parent material: Peoria and Roxana loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 24 to 40 inches to a fragipan
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 3.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

301C3—Grantsburg silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope and shoulder

Composition

Grantsburg and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Less developed soils with a fragipan that have a thicker loess cap
- Soils with a fragipan over residuum in more sloping positions
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Well drained Alford, Wellston, and Berks soils in similar and more sloping positions

Soil Properties and Qualities

Parent material: Peoria and Roxana loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 24 to 40 inches to a fragipan
Available water capacity: About 7.4 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

301D2—Grantsburg silt loam, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Grantsburg and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Less developed soils with a fragipan that have a thicker loess cap
- Soils with a fragipan over residuum in more sloping positions
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Well drained Wellston and Berks soils in similar and more sloping positions

Soil Properties and Qualities

Parent material: Peoria and Roxana loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 24 to 40 inches to a fragipan
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 3.0 percent
Shrink-swell potential: Moderate

Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

301D3—Grantsburg silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Backslope

Composition

Grantsburg and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Less developed soils with a fragipan that have a thicker loess cap
- Soils with a fragipan over residuum in more sloping positions
- Soils that have a seasonal high water table at a depth of less than 1.5 feet

Dissimilar inclusions:
- Well drained Alford, Wellston, and Berks soils in similar and more sloping positions

Soil Properties and Qualities

Parent material: Peoria and Roxana loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 24 to 40 inches to a fragipan
Available water capacity: About 7.4 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e

Prime farmland: Farmland of statewide importance
Hydric soil: No

335B—Robbs silt loam, 1 to 4 percent slopes

Setting

Landform on landscape: Loess hill on upland
Position on landform: Summit

Composition

Robbs and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have thicker loess
- Soils that have thinner surface horizons

Dissimilar inclusions:
- Somewhat poorly drained Stoy soils in similar slope positions

Soil Properties and Qualities

Parent material: Peoria and Roxana loess over residuum
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 20 to 40 inches to a fragipan
Available water capacity: About 8.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 1.0 foot; January to May
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

339C—Wellston silt loam, 5 to 10 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Summit and shoulder

Composition

Wellston and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Less sloping or more sloping areas

Dissimilar inclusions:
- Moderately well drained Hosmer and Zanesville soils on upper backslopes

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

339D—Wellston silt loam, 10 to 18 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Less sloping or more sloping areas
- Areas of thicker or thinner surface horizons

Dissimilar inclusions:
- Moderately well drained Hosmer and Zanesville soils on upper backslopes

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches

Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

339D2—Wellston silt loam, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Less sloping or more sloping areas

Dissimilar inclusions:
- Moderately well drained Hosmer and Zanesville soils in similar slope positions

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

339F—Wellston silt loam, 18 to 35 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Less sloping or more sloping areas

Dissimilar inclusions:
- Well drained Berks and Muskingum soils in similar positions
- Moderately well drained Hosmer and Zanesville soils on upper backslopes

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

340C2—Zanesville silt loam, 5 to 10 percent slopes, eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope and shoulder

Composition

Zanesville and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons

- Soils that formed in thinner loess
- Soils that have brittleness within a depth of 19 inches
- Soils that are more than 80 inches deep over bedrock

Dissimilar inclusions:
- Moderately well drained Grantsburg and Hosmer soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 19 to 32 inches to a fragipan; 40 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

340C3—Zanesville silt loam, 5 to 10 percent slopes, severely eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope and shoulder

Composition

Zanesville and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Soils that formed in thinner loess
- Soils that have brittleness within a depth of 17 inches
- Soils that are more than 80 inches deep over bedrock

Dissimilar inclusions:
- Moderately well drained Grantsburg and Hosmer soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 17 to 32 inches to a fragipan; 40 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

340D—Zanesville silt loam, 10 to 18 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Zanesville and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Soils that formed in thinner loess
- Soils that have brittleness within a depth of 20 inches
- Soils that are more than 80 inches deep over bedrock

Dissimilar inclusions:
- Moderately well drained Grantsburg and Hosmer soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 20 to 32 inches to a fragipan; 40 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 8.3 inches to a depth of 60 inches

Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

340D2—Zanesville silt loam, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Zanesville and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Soils that formed in thinner loess
- Soils that have brittleness within a depth of 19 inches
- Soils that are more than 80 inches deep over bedrock

Dissimilar inclusions:
- Moderately well drained Grantsburg and Hosmer soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 19 to 32 inches to a fragipan; 40 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

340D3—Zanesville silt loam, 10 to 18 percent slopes, severely eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Zanesville and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Soils that formed in thinner loess
- Soils that have brittleness within a depth of 17 inches
- Soils that are more than 80 inches deep over bedrock

Dissimilar inclusions:
- Moderately well drained Grantsburg and Hosmer soils in shoulder and backslope positions

Soil Properties and Qualities

Parent material: Loess over residuum
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 17 to 32 inches to a fragipan; 40 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 7.2 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Farmland of statewide importance
Hydric soil: No

477C2—Winfield silt loam, 5 to 10 percent slopes, eroded

Setting

Landform on landscape: Loess hill on upland
Position on landform: Shoulder and backslope

Composition

Winfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Soils that have a seasonal high water table at a depth of more than 3.5 feet

Dissimilar inclusions:
- Moderately well drained Hosmer soils in summit and shoulder positions

Soil Properties and Qualities

Parent material: Loess
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Moderate
Highest apparent seasonal high water table (depth, months): 2.0 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

691D—Beasley silt loam, 10 to 18 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Beasley and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that have a thicker loess cap

Dissimilar inclusions:
- Well drained Muskingum and Wellston soils in similar slope positions
- Moderately well drained Zanesville soils in similar slope positions

Soil Properties and Qualities

Parent material: Loess over shale residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Very slow to moderately slow
Depth to restrictive feature: 36 to 60 inches to paralithic bedrock
Available water capacity: About 5.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Potential frost action: None
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

691F—Beasley silt loam, 18 to 35 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Beasley and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that have a thicker loess cap

Dissimilar inclusions:
- Well drained Muskingum and Berks soils in similar slope positions
- Moderately well drained Zanesville soils in less sloping positions

Soil Properties and Qualities

Parent material: Loess over shale residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Very slow to moderately slow

Depth to restrictive feature: 36 to 60 inches to paralithic bedrock
Available water capacity: About 5.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Potential frost action: None
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soil: No

793F—Berks, Muskingum, and Weikert soils, 18 to 35 percent slopes

Setting

Landform on landscape: Escarpment on upland
Position on landform: Backslope

Composition

Berks and similar soils: 40 percent
Muskingum and similar soils: 35 percent
Weikert and similar soils: 15 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that have paralithic bedrock at a depth of less than 20 inches

Dissimilar inclusions:
- Moderately well drained Sharon soils on flood plains
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 2.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Muskingum

Parent material: Residuum weathered from interbedded siltstone, sandstone, and shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to paralithic or lithic bedrock
Available water capacity: About 4.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Weikert

Parent material: Residuum weathered from shale and sandstone
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Available water capacity: About 0.9 inch to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

793G—Berks, Muskingum, and Weikert soils, 35 to 70 percent slopes

Setting

Landform on landscape: Escarpment on upland
Position on landform: Backslope

Composition

Berks and similar soils: 40 percent
Muskingum and similar soils: 35 percent
Weikert and similar soils: 15 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that have paralithic bedrock at a depth of less than 20 inches

Dissimilar inclusions:
• Moderately well drained Sharon soils on flood plains
• Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 2.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Muskingum

Parent material: Residuum weathered from interbedded siltstone, sandstone, and shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to paralithic or lithic bedrock
Available water capacity: About 4.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Weikert

Parent material: Residuum weathered from shale or sandstone
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Available water capacity: About 0.9 inch to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 7e

Prime farmland: Not prime farmland
Hydric soils: No

801B—Orthents, silty, undulating

General Description

This map unit consists of areas where soil material has been excavated and redeposited during sand and gravel mining operations, road construction, dam building, or other activities requiring mass disturbance of earthy material. The slopes are generally less than 7 percent. Typically, the surface layer is silt loam or silty clay loam. The underlying material is silty clay loam, silt loam, loam, or clay loam. The soil properties and qualities listed below are average values. The values may be significantly different at any given site.

Setting

Landform on landscape: Cut (road, railroad, etc.), fill, borrow pit, and/or reclaimed land on uplands, terraces, lake plains, or flood plains

Composition

Orthents and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have a seasonal high water table within a depth of 6 feet

Dissimilar inclusions:
- Stony areas and areas where the soil is sandy or clayey
- Areas of natural or undisturbed soils

Soil Properties and Qualities

Parent material: Earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.0 inches to a depth of 60 inches
Organic matter content of surface layer: 0.0 to 1.0 percent
Shrink-swell potential: Moderate
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: Not prime farmland
Hydric soils: No

802D—Orthents, loamy, hilly

General Description

This map unit consists of areas where soil material has been excavated from borrow areas and redeposited as a result of mining operations, road and levee construction, dam building, or other activities requiring mass disturbance of earthy material. Slopes generally range from 0 to 20 percent. Typically, the surface layer is silt loam or loam. The underlying material is silt loam, loam, clay loam, or fine sandy loam. The soil properties and qualities listed below are average values. The values may be significantly different at any given site.

Setting

Landform on landscape: Constructed levee, cut (road, railroad, etc.), fill, and/or borrow pit areas on uplands, terraces, lake plains, and flood plains

Composition

Orthents and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have a seasonal high water table within a depth of 6 feet

Dissimilar inclusions:
- Areas of undisturbed natural soils
- Wet borrow pits and areas that have more clay

Soil Properties and Qualities

Parent material: Earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Organic matter content of surface layer: 0.1 to 1.0 percent
Shrink-swell potential: Moderate
Potential frost action: Moderate
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Not prime farmland
Hydric soils: No

802F—Orthents, loamy, hilly and very hilly

General Description

This map unit consists of areas where soil material has been excavated from borrow areas and redeposited as a result of mining, road and levee construction, dam

building, or other activities requiring mass disturbance of earthy material. It also consists of areas at highway and interstate intersections. Slopes generally range from 20 to 60 percent. Typically, the surface layer is silt loam or loam. The underlying material is silt loam, loam, clay loam, or fine sandy loam. The soil properties and qualities listed below are average values. The values may be significantly different at any given site.

Setting

Landform on landscape: Road beds, cutbanks, interstate clover leafs, and small surface-mined areas on uplands, terraces, lake plains, and flood plains

Composition

Orthents and similar soils: 85 percent
Dissimilar soils: 15 percent

Inclusions

Similar inclusions:
- Small less sloping areas

Dissimilar inclusions:
- Areas of natural or undisturbed soils
- Areas with significant amounts of rock fragments, cinders, bricks, or other debris
- Wet borrow pits and areas of clayey soils

Soil Properties and Qualities

Parent material: Earthy fill
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.9 inches to a depth of 60 inches
Organic matter content of surface layer: 0.1 to 1.0 percent
Shrink-swell potential: Moderate
Potential frost action: Moderate
Corrosivity: Moderate for steel and moderate for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Moderate

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

834F—Wellston-Westmore silt loams, 18 to 35 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 55 percent

Westmore and similar soils: 35 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that are deeper to bedrock

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils on narrow flood plains
- Moderately well drained Zanesville soils on upper backslopes

Soil Properties and Qualities

Wellston

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Westmore

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow to moderate
Depth to restrictive feature: 48 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

864—Pits, quarries

General Description

This map unit consists of open excavations from which limestone has been

removed or is being removed and adjacent areas where limestone is being processed into agricultural limestone or aggregates for road surfacing.

Composition

Pits, quarries and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas of Orthents
- Areas that include haul roads, crushed limestone stockpiles, and debris

Dissimilar inclusions:
- Areas of natural or undisturbed soils

Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not prime farmland
Hydric soil: No

865—Pits, gravel

General Description

This map unit consists of nearly level or gently sloping areas from which gravel has been excavated and extracted. Some pits have nearly vertical sidewalls. Some pits are active and others have been abandoned. Some contain water.

Composition

Pits, gravel and similar inclusions: 90 percent
Dissimilar inclusions: 10 percent

Inclusions

Similar inclusions:
- Areas that include haul roads, gravel stockpiles, and debris
- Areas of Orthents

Dissimilar inclusions:
- Areas of natural or undisturbed soils

Interpretive Groups

Land capability classification: None assigned
Prime farmland: Not prime farmland
Hydric soils: No

940D2—Zanesville-Westmore silt loams, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Zanesville and similar soils: 45 percent
Westmore and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that are deeper to bedrock

Dissimilar inclusions:
- Well drained Burnside soils on narrow flood plains
- Moderately well drained Hosmer soils on upper backslopes

Soil Properties and Qualities

Zanesville

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow or slow
Depth to restrictive feature: 19 to 32 inches to a fragipan; 40 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 7.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Westmore

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 48 to 80 inches to paralithic or lithic bedrock
Available water capacity: About 8.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soils: No

955F—Muskingum and Berks soils, 18 to 35 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Muskingum and similar soils: 55 percent
Berks and similar soils: 40 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that are more than 40 inches deep to bedrock

Dissimilar inclusions:
- Moderately well drained Grantsburg soils in lesser sloping positions
- Well drained Burnside soils and moderately well drained Sharon soils on narrow flood plains

Soil Properties and Qualities

Muskingum

Parent material: Residuum weathered from interbedded siltstone, sandstone, and shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to paralithic or lithic bedrock
Available water capacity: About 4.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 2.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

955G—Muskingum and Berks soils, 35 to 70 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Muskingum and similar soils: 55 percent
Berks and similar soils: 40 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons

Dissimilar inclusions:
- Well drained Burnside soils and moderately well drained Sharon soils on narrow flood plains

Soil Properties and Qualities

Muskingum

Parent material: Residuum weathered from interbedded siltstone, sandstone, and shale
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to paralithic or lithic bedrock
Available water capacity: About 4.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Moderate
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 2.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Low

Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 7e
Prime farmland: Not prime farmland
Hydric soils: No

977F—Wellston-Neotoma complex, 18 to 35 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 45 percent
Neotoma and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have thinner surface horizons
- Soils that are deeper to bedrock

Dissimilar inclusions:
- Moderately well drained Zanesville soils on upper backslopes
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Wellston

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Neotoma

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Very slow to moderately rapid

Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Available water capacity: About 5.6 inches to a depth of 60 inches
Organic matter content of surface layer: 3.0 to 6.0 percent
Shrink-swell potential: Low
Potential frost action: Low
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Very low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

986D—Wellston-Berks complex, 10 to 18 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 50 percent
Berks and similar soils: 45 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that are more weakly developed

Dissimilar inclusions:
- Well drained Muskingum soils in similar slope positions
- Moderately well drained Zanesville soils in similar slope positions
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Wellston

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 2.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soils: No

986D2—Wellston-Berks complex, 10 to 18 percent slopes, eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 50 percent
Berks and similar soils: 45 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons
- Soils that are more weakly developed

Dissimilar inclusions:
- Well drained Muskingum soils in similar slope positions
- Moderately well drained Zanesville soils in similar slope positions
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Wellston

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.1 inches to a depth of 60 inches

Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 1.8 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Not prime farmland
Hydric soils: No

986D3—Wellston-Berks complex, 10 to 18 percent slopes, severely eroded

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 50 percent
Berks and similar soils: 45 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Soils that have thicker surface horizons
- Areas of thicker or thinner loess

Dissimilar inclusions:
- Well drained Muskingum soils in similar slope positions
- Moderately well drained Zanesville soils on upper backslopes
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Wellston

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 7.8 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 1.6 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 2.0 percent
Shrink-swell potential: Low
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

986F—Wellston-Berks complex, 18 to 35 percent slopes

Setting

Landform on landscape: Hillslope on upland
Position on landform: Backslope

Composition

Wellston and similar soils: 50 percent
Berks and similar soils: 45 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Soils that have thinner surface horizons
- Soils that are more weakly developed

Dissimilar inclusions:
- Well drained Muskingum soils in similar slope positions
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Wellston

Parent material: Loess over residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: 40 to 72 inches to paralithic or lithic bedrock
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Berks

Parent material: Residuum
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Unspecified
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Available water capacity: About 2.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Potential frost action: Low
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 6e
Prime farmland: Not prime farmland
Hydric soils: No

1334A—Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Birds and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have silty overwash
- Soils that have more clay

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in slightly higher positions on the flood plain
- Poorly drained Piopolis soils on flood plains

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Most likely flooding (frequency, months): Frequent; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 1 foot
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soil: Yes

1843A—Bonnie and Petrolia soils, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Bonnie and similar soils: 45 percent
Petrolia and similar soils: 45 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that are not ponded

Dissimilar inclusions:
- Somewhat poorly drained Belknap soils in slightly higher positions on the flood plain

Soil Properties and Qualities

Bonnie

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 1.0 foot
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Petrolia

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 1.0 foot
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soils: Yes

1846A—Karnak and Cape silty clays, undrained, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Karnak and similar soils: 55 percent
Cape and similar soils: 35 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that are not ponded
- Areas that have silty overwash

Dissimilar inclusions:
- Soils on slight rises that are coarser textured and better drained
- Areas that have sandy overwash

Soil Properties and Qualities

Karnak

Parent material: Clayey alluvium
Drainage class: Very poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.0 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 1.0 foot
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Cape

Parent material: Clayey alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.3 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: High
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 1.0 foot
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Interpretive Groups

Land capability classification: 5w
Prime farmland: Not prime farmland
Hydric soils: Yes

3071A—Darwin silty clay, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Darwin and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Areas that have silty overwash
- Soils that have less clay

Dissimilar inclusions:
- Areas that have sandy overwash

Soil Properties and Qualities

Parent material: Clayey alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.9 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Very high
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Most likely flooding (frequency, months): Frequent; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.5 foot
Potential frost action: Moderate
Corrosivity: High for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Interpretive Groups

Land capability classification: 4w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3108A—Bonnie silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Bonnie and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that contain more clay

Dissimilar inclusions:
- Somewhat poorly drained Belknap soils in slightly higher positions on the flood plain

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.5 foot
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3180A—Dupo silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Dupo and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas

Dissimilar inclusions:
- Poorly drained Darwin soils in slightly depressional areas
- Somewhat poorly drained Wakeland soils in slightly higher areas

Soil Properties and Qualities

Parent material: Silty alluvium over clayey alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Available water capacity: About 10.3 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Highest perched seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3288A—Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Petrolia and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have silty overwash
- Occasionally flooded areas
- Areas that are acid

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in slightly higher positions on the flood plain

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.5 foot
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3331A—Haymond silt loam, 0 to 3 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Haymond and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas

Dissimilar inclusions:
- Well drained Burnside soils on narrow flood plains
- Somewhat poorly drained Wakeland soils in slightly depressional areas

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.2 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low

Most likely flooding (frequency, months): Frequent; January to May
Potential frost action: High
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3333A—Wakeland silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Wakeland and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas

Dissimilar inclusions:
- Well drained Haymond soils on slight rises or natural levees
- Poorly drained Birds soils in slight depressions

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): 0.5 foot; January to May
Most likely flooding (frequency, months): Frequent; January to June
Ponding: None
Potential frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3334A—Birds silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Birds and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have more clay

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in slightly higher positions on the flood plain

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.0 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Most likely flooding (frequency, months): Frequent; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.5 foot
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3382A—Belknap silt loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Belknap and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have a seasonal high water table at a depth of more than 2.0 feet
- Soils that are moderately acid to slightly alkaline

Dissimilar inclusions:
- Moderately well drained Sharon soils in slightly higher areas of the flood plain
- Poorly drained Bonnie soils in slight depressions
- Poorly drained Piopolis soils in slight depressions

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: No

3420A—Piopolis silty clay loam, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Piopolis and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas

- Areas that have silty overwash
- Soils that have less clay

Dissimilar inclusions:
- Somewhat poorly drained Belknap soils in slightly higher positions
- Areas that have sandy overwash

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Most likely flooding (frequency, months): Frequent; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.5 foot
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
Hydric soil: Yes

3426A—Karnak silty clay, 0 to 2 percent slopes, frequently flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Karnak and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have silty overwash
- Occasionally flooded areas
- Soils that have less clay

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in slightly higher positions
- Areas that have sandy overwash

Soil Properties and Qualities

Parent material: Clayey alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.0 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Most likely flooding (frequency, months): Frequent; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.5 foot
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Interpretive Groups

Land capability classification: 3w
Prime farmland: Farmland of statewide importance
Hydric soil: Yes

7460A—Ginat silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Summit

Composition

Ginat and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Areas where the surface layer is loam or very fine sandy loam

Dissimilar inclusions:
- Poorly drained Ruark soils in similar slope positions

Soil Properties and Qualities

Parent material: Silty alluvium over clayey alluvium and/or loamy alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 9.1 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate

Highest perched seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.2 foot
Most likely flooding (frequency, months): Rare; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

7462A—Sciotoville silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Summit

Composition

Sciotoville and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have thinner surface horizons
- Areas where the subsoil is loam throughout

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions
- Poorly drained Ginat soils on summits

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Most likely flooding (frequency, months): Rare; January to May
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete

Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

7462B—Sciotoville silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Summit and shoulder

Composition

Sciotoville and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have thinner surface horizons
- Areas where the subsoil is loam throughout

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.9 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Most likely flooding (frequency, months): Rare; January to May
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

7462C2—Sciotoville silt loam, 5 to 10 percent slopes, eroded, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Backslope

Composition

Sciotoville and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have thinner or thicker surface horizons
- Areas where the subsoil is loam throughout

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Most likely flooding (frequency, months): Rare; January to May
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

7462C3—Sciotoville silt loam, 5 to 10 percent slopes, severely eroded, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Backslope

Composition

Sciotoville and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have thicker surface horizons
- Areas where the subsoil is loam throughout

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.5 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 1.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Most likely flooding (frequency, months): Rare; January to May
Accelerated erosion: Surface layer is mostly subsoil material
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

7462D2—Sciotoville silt loam, 10 to 18 percent slopes, eroded, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Backslope

Composition

Sciotoville and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Soils that have thinner or thicker surface horizons
- Areas where the subsoil is loam throughout

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 1.5 feet; January to April
Most likely flooding (frequency, months): Rare; January to May
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: Moderate for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: High
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 4e
Prime farmland: Farmland of statewide importance
Hydric soil: No

7463B—Wheeling silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Summit and shoulder

Composition

Wheeling and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Areas with thinner surface horizons
- Areas that are sandy
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Loamy alluvium and/or silty alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches

Available water capacity: About 6.8 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Most likely flooding (frequency, months): Rare; January to May
Potential frost action: Moderate
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: All areas are prime farmland
Hydric soil: No

7463C2—Wheeling silt loam, 5 to 10 percent slopes, eroded, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Backslope

Composition

Wheeling and similar soils: 95 percent
Dissimilar soils: 5 percent

Inclusions

Similar inclusions:
- Occasionally flooded areas
- Areas with thinner or thicker surface horizons
- Areas that are sandy
- Soils that have a seasonal high water table at a depth of less than 3.5 feet

Dissimilar inclusions:
- Well drained Alvin soils in similar slope positions

Soil Properties and Qualities

Parent material: Loamy alluvium and/or silty alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Rapid
Depth to restrictive feature: More than 80 inches
Available water capacity: About 6.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Most likely flooding (frequency, months): Rare; January to May
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: Moderate
Corrosivity: Low for steel and moderate for concrete
Potential for surface runoff: Medium

Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3e
Prime farmland: Farmland of statewide importance
Hydric soil: No

7711A—Hatfield silt loam, 0 to 2 percent slopes, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Summit

Composition

Hatfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons

Dissimilar inclusions:
- Somewhat poorly drained Roby soils in similar slope positions
- Poorly drained Ginat soils on summits

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Rare; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: No

7711B—Hatfield silt loam, 2 to 5 percent slopes, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Shoulder and summit

Composition

Hatfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Soils that have thinner or thicker surface horizons

Dissimilar inclusions:
- Somewhat poorly drained Roby soils in similar slope positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Rare; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: Prime farmland if drained
Hydric soil: No

7711B2—Hatfield silt loam, 2 to 5 percent slopes, eroded, rarely flooded

Setting

Landform on landscape: Terrace in valley
Position on landform: Shoulder and summit

Composition

Hatfield and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
• Soils that have thinner or thicker surface horizons

Dissimilar inclusions:
• Somewhat poorly drained Roby soils in similar slope positions

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Very slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 10.5 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest perched seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Rare; January to June
Accelerated erosion: Surface layer has been thinned by erosion
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Very high
Water erosion susceptibility: Moderate
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2e
Prime farmland: Prime farmland if drained
Hydric soil: No

8071A—Darwin silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Darwin and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
• Frequently flooded areas
• Areas that have silty overwash

Dissimilar inclusions:
• Areas with sandy overwash

Soil Properties and Qualities

Parent material: Clayey alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow

Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.9 inches to a depth of 60 inches
Organic matter content of surface layer: 4.0 to 5.0 percent
Shrink-swell potential: Very high
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.2 foot
Most likely flooding (frequency, months): Occasional; January to June
Potential frost action: Moderate
Corrosivity: High for steel and low for concrete
Potential for surface runoff: High
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8072A—Sharon silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Sharon and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas with sandy overwash
- Areas where thin horizons of sand or gravel are present
- Frequently flooded areas

Dissimilar inclusions:
- Somewhat poorly drained Belknap soils in shallow depressions

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Moderately well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.0 inches to a depth of 60 inches
Organic matter content of surface layer: 0.5 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): 3.0 feet; January to April
Ponding: None
Most likely flooding (frequency, months): Occasional; January to May
Potential frost action: High
Corrosivity: Low for steel and high for concrete

Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

8108A—Bonnie silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Bonnie and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas
- Soils that contain more clay

Dissimilar inclusions:
- Somewhat poorly drained Belknap soils in slightly higher positions on the flood plain

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.2 foot
Most likely flooding (frequency, months): Occasional; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8180A—Dupo silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Dupo and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in slightly higher areas
- Poorly drained Darwin soils in slightly depressional areas

Soil Properties and Qualities

Parent material: Silty alluvium over clayey alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Available water capacity: About 10.3 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: High
Highest perched seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Occasional; January to June
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

8331A—Haymond silt loam, 0 to 3 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Haymond and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in slightly depressional areas
- Well drained Burnside soils on narrow flood plains

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.2 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Ponding: None
Most likely flooding (frequency, months): Occasional; January to May
Potential frost action: High
Corrosivity: Low for steel and low for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: All areas are prime farmland
Hydric soil: No

8333A—Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Wakeland and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas

Dissimilar inclusions:
- Well drained Haymond soils on slight rises
- Poorly drained Birds soils in slight depressions

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Moderate

Depth to restrictive feature: More than 80 inches
Available water capacity: About 12.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Frequent; January to June
Potential frost action: High
Corrosivity: High for steel and low for concrete
Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: No

8382A—Belknap silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Belknap and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas
- Soils that have a seasonal high water table at a depth of more than 2.0 feet
- Soils that are moderately acid to slightly alkaline

Dissimilar inclusions:
- Moderately well drained Sharon soils on natural levees
- Poorly drained Bonnie soils in slight depressions
- Poorly drained Piopolis soils in slight depressions

Soil Properties and Qualities

Parent material: Silty alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Moderately slow
Permeability below a depth of 60 inches: Moderately slow or moderate
Depth to restrictive feature: More than 80 inches
Available water capacity: About 13.7 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Low
Highest apparent seasonal high water table (depth, months): 0.5 foot; January to May
Ponding: None
Most likely flooding (frequency, months): Occasional; January to June
Potential frost action: High
Corrosivity: High for steel and high for concrete

Potential for surface runoff: Very low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: No

8420A—Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Piopolis and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas
- Areas that have silty overwash
- Soils that have more clay

Dissimilar inclusions:
- Somewhat poorly drained Belknap soils in slightly higher positions
- Areas that have sandy overwash

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 11.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 3.0 percent
Shrink-swell potential: Moderate
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Most likely flooding (frequency, months): Occasional; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.2 foot
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Very low

Interpretive Groups

Land capability classification: 3w
Prime farmland: Prime farmland if drained
Hydric soil: Yes

8426A—Karnak silty clay, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Karnak and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Areas that have silty overwash
- Frequently flooded areas
- Soils that have a more acid reaction

Dissimilar inclusions:
- Soils on slight rises that are coarser textured and better drained

Soil Properties and Qualities

Parent material: Clayey alluvium
Drainage class: Poorly drained
Slowest permeability within a depth of 40 inches: Very slow
Permeability below a depth of 60 inches: Slow
Depth to restrictive feature: More than 80 inches
Available water capacity: About 7.0 inches to a depth of 60 inches
Organic matter content of surface layer: 2.0 to 3.0 percent
Shrink-swell potential: High
Highest apparent seasonal high water table (depth, months): At the surface; January to June
Ponding (average depth during wettest periods or after heavy rainfall): 0.2 foot
Most likely flooding (frequency, months): Occasional; January to June
Potential frost action: High
Corrosivity: High for steel and moderate for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Moderate

Interpretive Groups

Land capability classification: 3w
Prime farmland: Farmland of statewide importance
Hydric soil: Yes

8427B—Burnside silt loam, 1 to 4 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood plain in valley

Composition

Burnside and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Rarely flooded or frequently flooded areas
- Areas where a loamy or silty surface layer is more than 24 inches thick
- Areas where bedrock is within a depth of 40 inches

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils in depressional areas

Soil Properties and Qualities

Parent material: Loamy alluvium over fragmental loamy alluvium
Drainage class: Well drained
Slowest permeability within a depth of 40 inches: Moderate
Permeability below a depth of 60 inches: Very slow to moderate
Depth to restrictive feature: 40 to 80 inches to lithic bedrock
Available water capacity: About 7.8 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Most likely flooding (frequency, months): Occasional; January to May
Potential frost action: Moderate
Corrosivity: Low for steel and high for concrete
Potential for surface runoff: Low
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2s
Prime farmland: All areas are prime farmland
Hydric soil: No

8787A—Banlic silt loam, 0 to 2 percent slopes, occasionally flooded

Setting

Landform on landscape: Flood-plain step in valley

Composition

Banlic and similar soils: 90 percent
Dissimilar soils: 10 percent

Inclusions

Similar inclusions:
- Frequently flooded areas

Dissimilar inclusions:
- Somewhat poorly drained Wakeland soils adjacent to stream channels
- Well drained Haymond soils adjacent to stream channels

Soil Properties and Qualities

Parent material: Alluvium
Drainage class: Somewhat poorly drained
Slowest permeability within a depth of 40 inches: Slow
Permeability below a depth of 60 inches: Moderately slow

Depth to restrictive feature: More than 80 inches
Available water capacity: About 8.6 inches to a depth of 60 inches
Organic matter content of surface layer: 1.0 to 2.0 percent
Shrink-swell potential: Low
Highest perched seasonal high water table (depth, months): 0.5 foot; January to May
Most likely flooding (frequency, months): Occasional; January to June
Ponding: None
Potential frost action: High
Corrosivity: High for steel and high for concrete
Potential for surface runoff: Medium
Water erosion susceptibility: Low
Wind erosion susceptibility: Low

Interpretive Groups

Land capability classification: 2w
Prime farmland: Prime farmland if drained
Hydric soil: No

W—Water

This map unit consists of natural water bodies and impoundments generally used for livestock water supplies, as wetland wildlife habitat, or for recreational purposes.

This map unit is not assigned any interpretive groups.

Use and Management of the Soils

This survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are not limited, somewhat limited, and very limited. The suitability ratings are expressed as well suited, moderately suited, poorly suited, and unsuited or as good, fair, and poor.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Agronomy

General management needed for crops and pasture is suggested in this section. The system of land capability classification used by the Natural Resources Conservation Service is explained, the estimated yields of the main crops and pasture plants are listed for each soil, and prime farmland is described.

Planners of management systems for individual fields or farms should consider obtaining specific information from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The soils in Johnson County have good potential for continued crop production, especially if the latest crop production technology is applied. This soil survey can be used as a guide for applying the latest crop production technology.

The demand for food and fiber has increased in recent years. As a result, some land of marginal quality has been used for crops. Much of this land is more susceptible to erosion than the more productive land. In addition, the number of residential tracts has increased throughout the county. These tracts commonly are in areas of prime farmland. If these trends continue, they could result in a significant decline in the quality and quantity of the land used for food and fiber.

Limitations and Hazards Affecting Cropland

The management concerns affecting the use of the detailed soil map units in the survey area for crops are shown in table 5. The main concerns include crusting, flooding, ponding, poor tilth, water erosion, and wetness. Excessive permeability, high pH, limited available water capacity, and wind erosion are additional concerns.

Crusting occurs when flowing water or raindrops break down soil structural units, moving clay downward and leaving a concentration of sand and silt particles on the surface layer. Crusts can reduce the rate of water infiltration, increase the runoff rate, inhibit seedling emergence and proper growth, and reduce oxygen diffusion to seedlings.

Practices that minimize surface crusting protect the surface from the impact of raindrops and flowing water. Incorporating green manure crops, manure, or crop residue into the soil and using a system of conservation tillage help to prevent crusting by improving tilth.

Flooding occurs in unprotected areas along major rivers and their tributaries. Levees or diversions reduce the extent of crop damage caused by floodwater. Surface drainage ditches can remove floodwater if suitable outlets are available. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning. Selecting crop varieties adapted to a shorter growing season and wetter conditions can also reduce the extent of damage caused by flooding.

Ponding is a hazard in areas where the seasonal high water table is above the surface. Land grading helps to control ponding. Surface ditches and surface inlet tile also help to remove excess water if suitable outlets are available. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Poor tilth can occur in soils when part of the subsoil is incorporated into the plow layer, typically as a result of the thinning of the surface layer by erosion. The

incorporation of subsoil material into the plow layer decreases the amount of organic matter and increases the clay content in the surface soil. Intensive rainfall can result in the formation of a crust on the surface. Poor tilth also occurs in poorly drained soils that have a high clay content, regardless of organic matter content, and in soils that have been excessively tilled. Poor tilth reduces the rate of water infiltration and increases the runoff rate and the hazard of erosion in the more sloping areas. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. Because they can be tilled only within a narrow range of moisture content, seedbed preparation is difficult. Regularly returning crop residue to the soil, adding other organic material to the soil, minimizing tillage, and timing conservation tillage operations to near optimal soil moisture conditions can improve tilth.

Water erosion can occur if the surface soil is not protected against the impact of raindrops. Erosion leads to a reduction in soil aggregate stability, which reduces the rate of water infiltration and increases the rate of surface runoff. Soils with long or steep slopes are more susceptible than other soils to water erosion. Erosion, primarily sheet and rill erosion, removes the surface soil, which commonly has the highest amount of biological activity and the highest content of organic matter. The productivity of the soil is reduced as the content of organic matter and the level of natural fertility are lowered. Poor tilth and crusting can occur when the subsoil, which generally has a higher content of clay than the surface soil, is incorporated through tillage into the plow layer. Excessive runoff can impact the quality of surface water through sedimentation and contamination by pesticides.

Erosion can be controlled by a conservation tillage system that leaves crop residue on the surface after planting or by a cropping system that rotates grasses and legumes in the cropping sequence. On soils with long, uniform slopes, contour farming and/or terraces in combination with a conservation tillage system can help to control erosion.

Wetness is a limitation when the seasonal high water table is at or near the surface. Subsurface tile drains can lower the seasonal high water table if suitable outlets are available. In soils that have a high content of clay and restricted permeability, subsurface drainage may not be practical. In these soils, surface ditches can reduce the wetness. Management of drainage in conformance with regulations influencing wetlands may require special permits and extra planning.

Additional management concerns are as follows:

Excessive permeability can occur in soils that have a high content of sand, which has many large pores. The capacity of these soils to retain moisture for plant use is limited. Deep leaching of nutrients and pesticides is possible and increases the risk of ground-water pollution. Irrigation can supply the moisture needed for crops. Also, frequent applications of a small amount of fertilizer are needed; one application of a large amount of fertilizer can result in excessive leaching of plant nutrients.

High pH is a limitation if the pH is more than 8.3. This limitation can affect the availability of many plant nutrients and influences the effectiveness of herbicides. More frequent applications of a small amount of fertilizer are needed to correct nutrient imbalances. Crops may respond well to additions of phosphate fertilizer in areas where the soils are limited by a high pH. The applications of herbicides should be adjusted as the level of alkalinity increases. Incorporating green manure crops, manure, or crop residue into the soil, applying a system of conservation tillage, and using conservation cropping systems also help to overcome this limitation.

Limited available water capacity can occur in soils that have a high content of sand, a low content of clay, and a low content of organic matter. Reducing the evaporation and runoff rates and increasing the rate of water infiltration can conserve soil moisture. Measures that conserve soil moisture include applying conservation tillage and conservation cropping systems, establishing field windbreaks, and leaving crop residue on the surface.

Wind erosion can occur when the surface of the soil is not protected. Wind erosion can be controlled by applying a system of conservation tillage that leaves crop residue on the surface after planting, by using tillage systems that leave the surface rough, by establishing field windbreaks, and by regularly adding organic material to the soil.

Following are explanations of the criteria used to determine the limitations listed in the table.

Crusting.—The average content of organic matter in the surface layer is less than or equal to 2.5 percent, and the content of clay is between 20 and 35 percent.

Excessive permeability.—The lower limit of the permeability rate is more than 6 inches per hour within the soil profile.

Flooding.—The soil is subject to occasional or frequent flooding.

High pH.—The upper limit of pH within a depth of 40 inches is more than 8.3.

Limited available water capacity.—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 6 inches or less.

Ponding.—Water is above the surface. The upper limit of the ponding depth is more than 0 inches.

Poor tilth.—The content of clay in the surface layer is 27 percent or more.

Water erosion.—The Kw factor multiplied by the slope is more than 0.8, and the slope is 3 percent or more.

Wetness.—The seasonal high water table is within a depth of 1.5 feet at some time during the growing season during normal years.

Wind erosion.—The wind erodibility group is 1 or 2.

Erosion factors (e.g., Kw factor) and wind erodibility groups are described under the heading “Physical Properties.”

Limitations and Hazards Affecting Pastureland

Management concerns affecting the use of the detailed soil map units in the survey area for pasture are shown in table 5. The main concerns in managing pastureland are low fertility, low pH, water erosion, and wetness. Additional management concerns include equipment limitations, excessive permeability, flooding, frost heave, high pH, limited available water capacity, ponding, poor tilth, and wind erosion.

Low fertility occurs in soils that have a low content of organic matter and a low cation-exchange capacity. The capacity of the soil to retain nutrients for plant use is limited. Frequent applications of small amounts of fertilizer help to prevent excessive loss of plant nutrients through leaching. Including legumes as part of a seeding mixture can provide nitrogen to the grass varieties. Timely deferment of grazing helps to maintain a vegetative cover on the surface and maintains the content of organic matter, a source of nutrients in the soil.

Low pH occurs when soils have a pH of 5.5 or less. This limitation can reduce solubility and availability of nutrients for plant growth. Selecting adapted forage and hay varieties and applying lime according to the results of soil tests can help to overcome this limitation.

Water erosion can occur in overgrazed areas or during pasture establishment and renovation, when the surface soil is not protected against raindrop impact. It results in poor tilth, which reduces the rate of water infiltration and increases the runoff rate. Soils with long or steep slopes also are susceptible to water erosion. Erosion can be controlled by deferred grazing, which prevents overgrazing and thus also helps to prevent surface compaction and excessive runoff and erosion. Tilling on the contour, using a no-till system of seeding when a seedbed is prepared or the pasture is renovated, and selecting adapted forage and hay varieties also help to control erosion.

Wetness occurs when the seasonal high water table is at or near the surface. Subsurface tile drains help to lower the seasonal high water table if suitable outlets are available. Management of drainage in conformance with regulations may require

special permits and extra planning. Selecting forage and hay varieties adapted to wet conditions can improve forage production. Restricting use during wet periods helps to keep the pasture in good condition.

Additional management concerns are as follows:

Equipment limitations occur in areas that have slopes of more than 18 percent or have 35 percent or more rock fragments in the surface layer. They can cause rapid wear of equipment and can present problems with fertilization, harvest, pasture renovation, and seedbed preparation. Equipment limitations cannot be easily overcome.

Excessive permeability can occur in soils that have a high content of sand and thus have many large pores. The capacity of these soils to retain moisture for plant use is limited. The deep leaching of nutrients and pesticides that can result can increase the risk of ground-water pollution. Irrigation can be used to supply the moisture needed for plant growth. Frequent applications of a small amount of fertilizer are needed; a single application of a large amount of fertilizer can result in excessive leaching of plant nutrients.

Flooding occurs in unprotected areas along the major rivers and their tributaries. Surface drainage ditches can help to remove floodwater if suitable outlets are available. Management of drainage in conformance with regulations may require special permits and extra planning. Selecting forage and hay varieties adapted to a shorter growing season and wetter conditions also reduces the extent of flood damage. Restricted use during wet periods helps to keep the pasture in good condition.

Frost heave occurs when ice lenses or bands develop in the soil and drive an ice wedge between two layers of soil near the surface layer. The ice wedges heave the overlying soil layer upward, snapping the roots. Soils in which the texture is low in sand have small pores that hold water and enable ice lenses to form. Selecting adapted forage and hay varieties can reduce the effects of frost heave. Timely deferment of grazing helps to maintain a vegetative cover on the surface to insulate the soil and thus reduces the effects of frost heave.

High pH is a limitation if the pH is more than 8.3. This limitation affects the availability of many nutrients for plant growth. More frequent applications of a small amount of fertilizer are needed to correct nutrient imbalances. Selecting adapted forage and hay varieties helps to overcome this limitation.

Limited available water capacity can occur in soils that have a high content of sand, a low content of clay, and a low content of organic matter. Reducing the evaporation and runoff rates and increasing the rate of water infiltration can conserve soil moisture. Measures that conserve soil moisture include applying conservation tillage and conservation cropping systems, establishing field windbreaks, and leaving crop residue on the surface.

Ponding occurs when the seasonal high water table is above the surface. Land grading helps to control ponding. Surface ditches and surface inlet tile also help to remove excess water if suitable outlets are available. Management of drainage in conformance with regulations may require special permits and extra planning. Selecting forage and hay varieties adapted to wet conditions can improve forage production. Restricting use during wet periods helps to keep the pasture in good condition.

Poor tilth can occur in soils when part of the subsoil is incorporated into the plow layer, typically as a result of the thinning of the surface layer by erosion. Poor tilth reduces the content of organic matter and increases the clay content in the surface soil. Intensive rainfall often results in the formation of a crust on the surface. Poor tilth also occurs in poorly drained soils that have a high content of clay, regardless of organic matter content, and in soils that have been excessively tilled. Poor tilth reduces the rate of water infiltration and increases the runoff rate and the hazard of erosion in

the more sloping areas. Soils with poor tilth generally have a surface layer that is sticky when wet and hard and cloddy when dry. Because they can be tilled only within a narrow range of moisture content, seedbed preparation is difficult. Minimizing tillage and timing conservation tillage operations to near optimal soil moisture conditions during pasture establishment or pasture renovation can improve tilth.

Wind erosion can occur in overgrazed areas or during pasture establishment and renovation if the surface of the soil is not protected. Wind erosion can be controlled by applying a system of conservation tillage that leaves residue on the surface after planting, by using tillage systems that leave the surface rough, by establishing field windbreaks, and by regularly adding organic material to the soil.

Following are explanations of the criteria used to determine the limitations listed in the table.

Equipment limitation.—The slope is more than 18 percent.

Excessive permeability.—The lower limit of the permeability rate is more than 6 inches per hour within the soil profile.

Flooding.—The soil is subject to occasional or frequent flooding.

Frost heave.—The potential for frost action is moderate or high, and the soil is poorly drained or very poorly drained.

High pH.—The upper limit of pH within a depth of 40 inches is more than 8.3.

Limited available water capacity.—The available water capacity calculated to a depth of 60 inches or to a root-limiting layer is 6 inches or less.

Low fertility.—The average content of organic matter in the surface layer is less than 1 percent, or the cation-exchange capacity is 7 or less.

Low pH.—The lower limit of pH within a depth of 40 inches is less than or equal to 5.5.

Ponding.—Water is above the surface. The upper limit of the ponding depth is more than 0 inches.

Poor tilth.—The content of clay in the surface layer is 27 percent or more.

Very gravelly surface-equipment limitation.—The content of rock fragments in the surface layer is 35 percent or more.

Water erosion.—The Kw factor multiplied by the slope is more than 1, and the slope is 3 percent of more.

Wetness.—The seasonal high water table is within a depth of 1.5 feet.

Wind erosion.—The wind erodibility group is 1 or 2.

Erosion factors (e.g., Kw factor) and wind erodibility groups are described under the heading “Physical Properties.”

Yields per Acre

The average yields per acre that can be expected of the principal crops and pasture plants under a high level of management are shown in table 6. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations are also considered. The yields in this soil survey for corn, soybeans, wheat, grain sorghum, and hay represent high levels of management and are from the University of Illinois *(11)*. The yields in this soil survey for pasture represent average levels of management and are from the University of Illinois *(10)*.

The management needed to obtain the indicated yields of the various crops and pasture plants depends on the kind of soil and the plant species. Management can include drainage, erosion control, and protection from flooding; the proper planting and

seeding rates; suitable high-yielding plant varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each species; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

The estimated yields reflect the productive capacity of each soil for each of the principal crops and pasture plants. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops and pasture plants other than those shown in the table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. The capability classification of map units in the survey area is given in table 6. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not take into account major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for woodland or for engineering purposes.

In the capability system, soils generally are grouped at three levels—capability class, subclass, and unit *(21)*. These categories indicate the degree and kinds of limitations affecting mechanized farming systems that produce the more commonly grown field crops, such as corn, small grain, cotton, hay, and field-grown vegetables. Only class and subclass are used in this survey.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use.

If properly managed, soils in classes 1, 2, 3, and 4 are suitable for the mechanized production of commonly grown field crops and for pasture and woodland. The degree of the soil limitations affecting the production of cultivated crops increases progressively from class 1 to class 4. The limitations can affect levels of production and the risk of permanent soil deterioration caused by erosion and other factors.

Soils in classes 5, 6, and 7 are generally not suited to the mechanized production of commonly grown field crops without special management, but they are suitable for plants that provide a permanent cover, such as grasses and trees. The severity of the soil limitations affecting crops increases progressively from class 5 to class 7. Areas in class 8 are generally not suitable for crops, pasture, or woodland without a level of management that is impractical. These areas may have potential for other uses, such as recreational facilities and wildlife habitat.

Capability subclasses identify the dominant kind of limitation in the class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless a close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or

stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

There are no subclasses in class 1 because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by w, s, or c because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use mainly to pasture, woodland, wildlife habitat, or recreation.

Prime Farmland

Prime farmland is of major importance in meeting the Nation's short- and long-range needs for food and fiber. The acreage of high-quality farmland is limited, and the U.S. Department of Agriculture recognizes that government at local, State, and Federal levels, as well as individuals, must encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland soils, as defined by the U.S. Department of Agriculture, are soils that are best suited to food, feed, forage, fiber, and oilseed crops. Such soils have properties that favor the economic production of sustained high yields of crops. The soils need only to be treated and managed by acceptable farming methods. An adequate moisture supply and a sufficiently long growing season are required. Prime farmland soils produce the highest yields with minimal expenditure of energy and economic resources, and farming these soils results in the least damage to the environment.

Prime farmland soils may presently be used as cropland, pasture, or woodland or for other purposes. They either are used for food and fiber or are available for these uses. Urban or built-up land, public land, and water areas cannot be considered prime farmland. Urban or built-up land is any contiguous unit of land 10 acres or more in size that is used for such purposes as housing, industrial, and commercial sites, sites for institutions or public buildings, small parks, golf courses, cemeteries, railroad yards, airports, sanitary landfills, sewage treatment plants, and water-control structures. Public land is land not available for farming in national forests, national parks, military reservations, and state parks.

Prime farmland soils commonly receive an adequate and dependable supply of moisture from precipitation or irrigation. The temperature and growing season are favorable, and the level of acidity or alkalinity and the content of salts and sodium are acceptable. The soils have few, if any, rocks and are permeable to water and air. They are not excessively erodible or saturated with water for long periods, and they are not frequently flooded during the growing season or are protected from flooding. Slopes range mainly from 0 to 6 percent.

Soils that have a zone high in the profile in which the soil moisture status is wet or soils that are subject to flooding may qualify as prime farmland where these limitations are overcome by drainage measures or flood control. Onsite evaluation is necessary to determine the effectiveness of corrective measures. More information about the criteria for prime farmland can be obtained at the local office of the Natural Resources Conservation Service.

A recent trend in land use has been the conversion of prime farmland to urban and industrial uses. The loss of prime farmland to other uses puts pressure on lands that are less productive than prime farmland.

The map units in the survey area that meet the requirements for prime farmland are listed in table 7. This list does not constitute a recommendation for a particular land use. On some soils included in the table, measures that overcome limitations are needed. The need for these measures is indicated in parentheses after the map unit name. The location of each map unit is shown on the detailed soil maps. The soil qualities that affect use and management are described in the section "Detailed Soil Map Units."

Hydric Soils

In this section, hydric soils are defined and described and the hydric soils in the survey area are listed.

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology *(3, 9, 15, 16)*. Criteria for each of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part *(4)*. These soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established *(5)*. These criteria are used to identify a phase of a soil series that normally is associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” *(17)* and “Keys to Soil Taxonomy” *(19)* and in the “Soil Survey Manual” *(22)*.

If soils are wet enough for a long enough period to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils in this survey area are specified in “Field Indicators of Hydric Soils in the United States” *(18)*.

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

The map units in table 8 meet the definition of hydric soils and, in addition, have at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site *(9)*.

Map units that are made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The map units in table 9, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

Forestland Management

In table 10, parts I, II, and III, interpretive ratings and information are given for various aspects of forest management.

Some rating class terms indicate the degree to which the soils are suited to a

specified forest management practice. *Well suited* indicates that the soil has features that are favorable for the specified practice and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified practice. One or more soil properties are less than desirable and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified practice. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified practice or that extreme measures are needed to overcome the undesirable soil properties.

Some rating class terms indicate the degree of limitation that restricts the use of a soil for a specific purpose. A *slight* rating is given to soils that have properties favorable for the use. Good performance and low maintenance can be expected. A *moderate* rating is given to soils that have properties that are moderately favorable for the use, and the limitation can be overcome or modified by special planning, design, or maintenance. The expected performance is somewhat less desirable than for soils rated slight. A *severe* rating is given to soils that have one or more properties unfavorable for the rated use. This degree of limitation generally requires major soil reclamation, special design, or intensive maintenance.

Numerical ratings indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified forest management practice (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils for forest management practices. More detailed information about the criteria used in the ratings is available in the “National Forestry Manual,” which is available at the local office of the Natural Resources Conservation Service or on the Internet.

For *construction limitations for haul roads and log landings,* the ratings are based on slope, flooding, permafrost, plasticity index, the hazard of soil slippage, content of sand, the Unified classification, rock fragments on or below the surface, depth to a restrictive layer that is indurated, depth to a water table, and ponding. The limitations are described as slight, moderate, or severe. A rating of slight indicates that no significant limitations affect construction activities, moderate indicates that one or more limitations can cause some difficulty in construction, and severe indicates that one or more limitations can make construction very difficult or very costly.

The ratings of *suitability of log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited.

The ratings of suitability for *harvest equipment operability* for logging areas are based on slope, landscape stability, water table duration, stoniness, boulder content, soil texture, and flooding. The soils are described as well suited, moderately suited, or poorly suited.

The ratings for *suitability of mechanized site preparation* are based on soil erodibility, soil texture, soil depth, drainage, water table duration, flooding, and the amount of cobbles, stones, or boulders on the surface. The soils are described as well suited, moderately suited, or poorly suited.

For limitations affecting *prescribed burning,* the ratings are based on slope, soil texture, drainage class, and rooting depth. Soils rated slight have few limitations that affect the reestablishment of vegetation. Soils that have moderate limitations require post-burning practices to achieve the desired results. Soils that have severe limitations require post-burning practices to achieve the desired erosion control.

Ratings in the column *erosion hazard on roads and trails* are based on the soil erodibilty factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of slight indicates that little or no erosion is likely; moderate indicates that some erosion is likely, that the roads or trails may require occasional maintenance, or that simple erosion-control measures are needed; and severe indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited.

Forestland Productivity

Information about the *potential productivity* of map unit components for merchantable or *common trees* is provided in table 11. The four common tree species are white oak, northern red oak, eastern cottonwood, and pin oak. Site indices are listed for soils where the species are commonly grown. The site indices in this soil survey are from the University of Illinois *(10)*.

The potential productivity of a component is expressed as a *site index.* The site index is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that woodland managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability.

Suggested trees to plant are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Windbreaks and Environmental Plantings

Windbreaks protect livestock, buildings, and yards from wind and snow. They also protect fruit trees and gardens, and they furnish habitat for wildlife. Several rows of low- and high-growing broadleaf and coniferous trees and shrubs provide the most protection.

Field windbreaks are narrow plantings made at right angles to the prevailing wind and at specific intervals across the field. The interval depends on the erodibility of the soil. Field windbreaks protect cropland and crops from wind, help to keep snow on the fields, and provide food and cover for wildlife.

Environmental plantings help to beautify and screen houses and other buildings and to abate noise. The plants, mostly evergreen shrubs and trees, are closely spaced. To ensure plant survival, a healthy planting stock of suitable species should be planted properly on a well prepared site and maintained in good condition.

Windbreaks are often planted on land that did not originally support trees. Knowledge of how trees perform on such land can be gained only by observing and recording the performance of trees that have been planted and have survived. Many popular windbreak species are not indigenous to the areas in which they are planted.

Each tree or shrub species has certain climatic and physiographic limits. Within these parameters, a tree or shrub may grow well or grow poorly, depending on the characteristics of the soil. Each tree or shrub has definable potential heights in a given physiographic area and under a given climate. Accurate definitions of potential heights are necessary when a windbreak is planned and designed.

Table 12 shows the height that locally grown trees and shrubs are expected to reach in 20 years on various soils. The estimates in this table are based on measurements and observation of established plantings that have been given adequate care. They can be used as a guide in planning windbreaks and screens. Additional information on planning windbreaks and screens and planting and caring for trees and shrubs can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service or from a nursery.

Recreation

The soils in the survey area are rated in table 13, parts I and II, according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the table are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the

growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a seasonal high water table, ponding, flooding, slope, and texture of the surface layer.

Off-road motorcycle trails require little or no site preparation. They are not covered with surfacing material or vegetation. Considerable compaction of the soil material is likely. The ratings are based on the soil properties that influence erodibility, trafficability, dustiness, and the ease of revegetation. These properties are stoniness, slope, depth to a water table, ponding, flooding, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

Johnson County provides a variety of habitat for wildlife, including forests, pastureland, extensive bottom-land areas, bluffs, and wetlands. The wildlife is also varied. There are populations of white-tailed deer, red-tailed hawks, bald eagles, wild turkey, snakes, gray squirrels, rabbits, bobwhite quail, and furbearers and many other nongame birds, mammals, amphibians, and reptiles. Wetland areas and streams support waterfowl, wading birds, shore birds, mink, muskrat, and a few river otters. Local conservation officials can assist in the selection of plants and the planning of wildlife habitat areas.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting the appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 14, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of good indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of grain and seed crops are corn, wheat, sorghum, and soybeans.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flooding, and slope. Soil temperature and soil moisture also are considerations. Examples of grasses and legumes are fescue, orchardgrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flooding. Soil temperature and soil moisture also are considerations. Examples of wild herbaceous plants are bluestem, ragweed, beggarweed, broomsedge, and grama.

Hardwood trees and woody understory produce nuts or other fruit, buds, catkins, twigs, bark, and foliage. Soil properties and features that affect the growth of hardwood trees and shrubs are depth of the root zone, available water capacity, and wetness. Examples of these plants are oak, poplar, cherry, sweetgum, apple, hawthorn, dogwood, hickory, blackberry, and blueberry.

Coniferous plants furnish browse and seeds. Soil properties and features that affect the growth of coniferous trees, shrubs, and ground cover are depth of the root zone, available water capacity, and wetness. Examples of coniferous plants are pine, spruce, fir, cedar, and juniper.

Wetland plants are annual and perennial wild herbaceous plants that grow on moist or wet sites. Submerged or floating aquatic plants are excluded. Soil properties and features affecting wetland plants are texture of the surface layer, wetness, reaction, salinity, slope, and surface stoniness. Examples of wetland plants are smartweed, wild millet, wildrice, cattail, cordgrass, rushes, sedges, and reeds.

Shallow water areas have an average depth of less than 5 feet. Some are naturally wet areas. Others are created by dams, levees, or other water-control structures. Soil properties and features affecting shallow water areas are depth to bedrock, wetness,

surface stoniness, slope, and permeability. Examples of shallow water areas are marshes, waterfowl feeding areas, and ponds.

The habitat for various kinds of wildlife is described in the following paragraphs.

Habitat for openland wildlife consists of cropland, pasture, meadows, and areas that are overgrown with grasses, herbs, shrubs, and vines. These areas produce grain and seed crops, grasses and legumes, and wild herbaceous plants. Wildlife attracted to these areas include bobwhite quail, pheasant, meadowlark, field sparrow, cottontail, and red fox.

Habitat for woodland wildlife consists of areas of deciduous and/or coniferous plants and associated grasses, legumes, and wild herbaceous plants. Wildlife attracted to these areas include wild turkey, woodcock, thrushes, woodpeckers, squirrels, gray fox, raccoon, and deer.

Habitat for wetland wildlife consists of open, marshy or swampy shallow water areas. Some of the wildlife attracted to such areas are ducks, geese, herons, shore birds, muskrat, mink, and beaver.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the estimated data and test data in the “Soil Properties” section.

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and

water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 15, parts I and II, show the degree and kind of soil limitations that affect dwellings with and without basements, small commercial buildings, local roads and streets, shallow excavations, and lawns and landscaping.

The ratings in the table are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Small commercial buildings are structures that are less than three stories high and do not have basements. The foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. The ratings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility (which is

inferred from the Unified classification). The properties that affect the ease and amount of excavation include flooding, depth to a water table, ponding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Sanitary Facilities

Table 16, parts I and II, show the degree and kind of soil limitations that affect septic tank absorption fields, sewage lagoons, sanitary landfills, and daily cover for landfill. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Slightly limited* indicates that the soil has features that are favorable for the specified use. The limitations are minor and can be easily overcome. Good performance and low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when

wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

In an *area sanitary landfill,* solid waste is placed in successive layers on the surface of the soil. The waste is spread, compacted, and covered daily with a thin layer of soil from a source away from the site. A final cover of soil material at least 2 feet thick is placed over the completed landfill. The ratings in the table are based on the soil properties that affect trafficability and the risk of pollution. These properties include flooding, permeability, depth to a water table, ponding, slope, and depth to bedrock or a cemented pan.

Flooding is a serious problem because it can result in pollution in areas downstream from the landfill. If permeability is too rapid or if fractured bedrock, a fractured cemented pan, or the water table is close to the surface, the leachate can contaminate the water supply. Slope is a consideration because of the extra grading required to maintain roads in the steeper areas of the landfill. Also, leachate may flow along the surface of the soils in the steeper areas and cause difficult seepage problems.

Daily cover for landfill is the soil material that is used to cover compacted solid waste in an area sanitary landfill. The soil material is obtained offsite, transported to the landfill, and spread over the waste. The ratings in the table also apply to the final cover for a landfill. They are based on the soil properties that affect workability, the ease of digging, and the ease of moving and spreading the material over the refuse daily during wet and dry periods. These properties include soil texture, depth to a water table, ponding, rock fragments, slope, depth to bedrock or a cemented pan, reaction, and content of salts, sodium, or lime.

Loamy or silty soils that are free of large stones and excess gravel are the best cover for a landfill. Clayey soils may be sticky and difficult to spread; sandy soils are subject to wind erosion.

Slope affects the ease of excavation and of moving the cover material. Also, it can influence runoff, erosion, and reclamation of the borrow area.

After soil material has been removed, the soil material remaining in the borrow area must be thick enough over bedrock, a cemented pan, or the water table to permit revegetation. The soil material used as the final cover for a landfill should be suitable for plants. It should not have excess sodium, salts, or lime and should not be too acid.

Construction Materials

Table 17, parts I and II, give information about the soils as potential sources of gravel, sand, topsoil, reclamation material, and roadfill. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 17, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is

that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The number 0.00 indicates that the layer is an unlikely source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as potential sources of reclamation material, roadfill, and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of reclamation material, roadfill, or topsoil. The lower the number, the greater the limitation.

Reclamation material is used in areas that have been drastically disturbed by surface mining or similar activities. When these areas are reclaimed, layers of soil material or unconsolidated geological material, or both, are replaced in a vertical sequence. The reconstructed soil favors plant growth. The ratings in the table do not apply to quarries and other mined areas that require an offsite source of reconstruction material. The ratings are based on the soil properties that affect erosion and stability of the surface and the productive potential of the reconstructed soil. These properties include the content of sodium, salts, and calcium carbonate; reaction; available water capacity; erodibility; texture; content of rock fragments; and content of organic matter and other features that affect fertility.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 18, parts I, II, and III, give information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for

pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

This table also gives for each soil the restrictive features that affect grassed waterways and surface drains, terraces and diversions, tile drains and underground outlets, and irrigation.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Grassed waterways and surface drains are natural or constructed channels, generally broad and shallow, that conduct surface water to outlets at a nonerosive velocity. Large stones, wetness, slope, and depth to bedrock or a cemented pan affect the construction of grassed waterways. A hazard of wind erosion, low available water capacity, restricted rooting depth, toxic substances such as salts and sodium, and restricted permeability adversely affect the growth and maintenance of the grass after construction.

Terraces and diversions are embankments or a combination of channels and ridges constructed across a slope to control erosion and conserve moisture by intercepting runoff. Slope, wetness, large stones, and depth to bedrock or a cemented pan affect the construction of terraces and diversions. A restricted rooting depth, a severe hazard

of wind erosion or water erosion, an excessively coarse texture, and restricted permeability adversely affect maintenance.

Tile drains and underground outlets remove excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock or other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding; subsidence of organic layers; and the potential for frost action. Excavating and grading and the stability of ditchbanks are affected by depth to bedrock, large stones, slope, and the hazard of cutbanks caving. The productivity of the soil after drainage is adversely affected by extreme acidity or by toxic substances in the root zone, such as salts, sodium, and sulfur.

Irrigation is the controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock or a cemented pan. The performance of a system is affected by the depth of the root zone, the amount of salts or sodium, and soil reaction.

Sprinkler irrigation is a method of irrigation in which water is pumped through nozzles and sprayed, or sprinkled, through the air to the ground surface.

Drip or trickle irrigation is a method of irrigation in which water is applied to the soil surface as drops or small streams through emitters.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in the tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 19 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. "Loam," for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, "gravelly." Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified

as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 20 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In table 20, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. The estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. The estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is

measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 20, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 20 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are as follows:

1. Coarse sands, sands, fine sands, and very fine sands.
2. Loamy coarse sands, loamy sands, loamy fine sands, loamy very fine sands, ash material, and sapric soil material.
3. Coarse sandy loams, sandy loams, fine sandy loams, and very fine sandy loams.

4L. Calcareous loams, silt loams, clay loams, and silty clay loams.

4. Clays, silty clays, noncalcareous clay loams, and silty clay loams that are more than 35 percent clay.
5. Noncalcareous loams and silt loams that are less than 20 percent clay and sandy clay loams, sandy clays, and hemic soil material.
6. Noncalcareous loams and silt loams that are more than 20 percent clay and noncalcareous clay loams that are less than 35 percent clay.
7. Silts, noncalcareous silty clay loams that are less than 35 percent clay, and fibric soil material.
8. Soils that are not subject to wind erosion because of coarse fragments on the surface or because of surface wetness.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 21 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Cation-exchange capacity is the total amount of extractable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Effective cation-exchange capacity refers to the sum of extractable cations plus aluminum expressed in terms of milliequivalents per 100 grams of soil. It is determined for soils that have a pH of less than 5.5.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil.

Water Features

Table 22 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group, the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the water table is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 22 indicates, by month, depth to the top *(upper limit)* and base *(lower limit)* of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Also indicated in the table is the *kind of water table*. An *apparent* water table is a thick zone of free water in the soil. It is indicated by the level at which water stands in an uncased borehole after adequate time is allowed for adjustment in the surrounding soil. A *perched* water table is water standing above an unsaturated zone. In places, an upper, or perched, water table is separated from a lower one by a dry zone.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 22 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall

or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 23 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness of the restrictive layer, which significantly affects the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel

or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as low, moderate, or high, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as low, moderate, or high. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories *(17, 19)*. Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or from laboratory measurements. Table 24 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Alfisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udalf (*Ud*, meaning humid, plus *alf*, from Alfisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludalfs (*Hapl*, meaning simple, plus *udalf*, the suborder of the Alfisols that has an udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other known kind of soil. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective Typic identifies the subgroup that typifies the great group. An example of an adjective that represents an intergrade is Ultic. *Ultic* means that the soil is transitioning toward an Ultisol. It signifies a lower base saturation than typical for Hapludalfs. An example of a subgroup is Ultic Hapludalfs.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is loamy-skeletal, mixed, active, mesic Ultic Hapludalfs.

SERIES. The series consists of soils that have similar horizons in their profile. The horizons are similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile. The texture of the surface layer or of the substratum can differ within a series.

Soil Series and Their Morphology

In this section, arranged in alphabetical order, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” *(22)*. Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” *(17)* and in “Keys to Soil Taxonomy” *(19)*. Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Banlic Series

Taxonomic classification: Coarse-silty, mixed, active, acid, mesic Fragic Epiaquepts

Typical Pedon

Banlic silt loam; on a nearly level flood-plain step in an idle field at an elevation of about 395 feet above mean sea level, approximately 226 feet north and 484 feet west of the center of sec. 31, T. 5 S., R. 2 W.; in Perry County, Illinois; USGS Pyatts, IL topographic quadrangle; lat. 38 degrees 02 minutes 50 seconds N. and long. 89 degrees 21 minutes 50 seconds W.; UTM Zone 16, Easting 292567, Northing 4213696, NAD 83:

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; few very fine and fine roots; few fine iron-manganese concretions; slightly alkaline; abrupt smooth boundary.

A—5 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine and medium subangular blocky structure; friable; few very fine and fine roots; many fine faint dark yellowish brown (10YR 4/4) masses of oxidized iron in the matrix; few fine iron-manganese concretions; neutral; abrupt smooth boundary.

E—8 to 13 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; weak fine and medium subangular blocky structure; friable; few very fine roots; common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine iron-manganese concretions; very strongly acid; clear smooth boundary.

Bw—13 to 21 inches; pale brown (10YR 6/3) silt loam; weak medium subangular blocky structure; friable; few very fine roots; common fine faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine iron-manganese concretions; very strongly acid; clear smooth boundary.

Bx1—21 to 27 inches; brown (10YR 5/3) silt loam; moderate medium subangular blocky structure; firm; few very fine roots; common prominent white (10YR 8/1, dry) clay depletions on faces of peds; common fine faint light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine iron-manganese concretions; brittle; very strongly acid; clear smooth boundary.

Bx2—27 to 38 inches; brown (10YR 5/3) silt loam; moderate medium prismatic structure parting to weak medium subangular blocky; firm; few very fine roots; common prominent white (10YR 8/1, dry) clay depletions on faces of peds; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine iron-manganese concretions; brittle; very strongly acid; clear smooth boundary.

BCg—38 to 55 inches; light brownish gray (10YR 6/2) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; few distinct white (10YR 8/1, dry) clay depletions on faces of peds; common medium distinct yellowish brown (10YR 5/4) masses of oxidized iron in the matrix; common medium iron-manganese concretions; very strongly acid; gradual smooth boundary.

Cg—55 to 80 inches; variegated 50 percent light brownish gray (10YR 6/2) and 50 percent yellowish brown (10YR 5/4) silt loam; massive; friable; common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; many fine iron-manganese concretions; slightly acid.

Range in Characteristics

Depth to the fragic soil properties: 15 to 36 inches
Depth to the base of the cambic horizon: 45 to 65 inches
Particle-size control section: Average of 12 to 18 percent clay and less than 15 percent sand

Ap or A horizon:
Hue—10YR
Value—3 to 5 (6 or 7 dry)
Chroma—2 or 3
Texture—silt loam
Reaction—strongly acid to slightly alkaline depending upon liming practices

E horizon:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 or 3
Texture—silt loam
Reaction—very strongly acid or strongly acid; ranging to neutral in limed pedons

Bg or Bw horizon:
Hue—10YR
Value—5 or 6
Chroma—2 or 3
Texture—silt loam
Reaction—very strongly acid or strongly acid

Bx horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 to 4
Texture—silt loam or silt
Reaction—very strongly acid or strongly acid

BCg or BC horizon (if it occurs):
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam or silt
Reaction—very strongly acid or strongly acid

Cg or C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam
Reaction—very strongly acid to slightly acid

The Banlic soils in this survey area are considered a taxadjunct to the series because they have browner colors in the upper part of the soil profile that are outside the range defined for the series. This difference, however, does not significantly affect the use and management of the soils. The taxadjunct classifies as coarse-silty, mixed, active, mesic Fragiaquic Dystrudepts.

Beasley Series

Taxonomic classification: Fine, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Beasley silt loam; in a moderately steep, wooded area at an elevation of about 530 feet above mean sea level, approximately 460 feet along a gravel road northeast from the centerline of Illinois Route 146, and 125 feet southwest from the centerline of a gravel road in the SE1/4 NW1/4 NW1/4 SW1/4 of sec. 18, T. 13 S., R. 7 E.; in Pope County, Illinois; USGS Shelterville, IL topographic quadrangle; lat. 37 degrees 23 minutes 09 seconds N. and long. 88 degrees 29 minutes 19 seconds W.; UTM Zone 16 Easting 368211, Northing 4138712, NAD 83:

A—0 to 1 inch; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many roots; neutral; abrupt smooth boundary.

E—1 to 7 inches; yellowish brown (10YR 5/4) silt loam; weak thin platy structure parting to weak fine granular; friable; many roots; moderately acid; clear smooth boundary.

Bt1—7 to 14 inches; strong brown (7.5YR 5/6) silty clay; common fine distinct light yellowish brown (10YR 6/4) mottles; weak medium angular blocky structure parting to moderate very fine angular blocky; very firm; common roots; few faint yellowish red (5YR 5/6) clay films on faces of peds; 5 percent sandstone fragments; few very fine black (N 2.5/0) iron-manganese concretions; moderately acid; gradual wavy boundary.

Bt2—14 to 22 inches; yellowish brown (10YR 5/6) clay; common fine faint yellowish brown (10YR 5/4), light olive brown (2.5Y 5/4), and strong brown (7.5YR 5/6) mottles; weak fine and very fine angular blocky structure; very firm; few roots; few faint strong brown (7.5YR 5/6) clay films on faces of peds; common very fine black (N 2.5/0) iron-manganese concretions; neutral; clear wavy boundary.

C—22 to 36 inches; light brownish gray (2.5Y 6/2) gravelly clay; common very fine and fine distinct yellowish brown (10YR 5/6) and light olive brown (2.5Y 5/6) mottles; massive; very firm; gray (5Y 6/1) and light olive gray (5Y 6/2) slickensides; 15 to 30 percent olive (5Y 5/6) and olive gray (5Y 5/2) fine shale fragments; shale fragments are strongly effervescent; slightly alkaline; gradual wavy boundary.

Cr—36 to 80 inches; olive (5Y 5/3), olive gray (5Y 5/2), and greenish gray (5G 6/1) soft calcareous shale.

Range in Characteristics

Thickness of loess: 0 to 24 inches
Thickness of the solum: 20 to 40 inches
Depth to calcareous shale bedrock: 36 to 60 inches
Content of rock fragments: 0 to 10 percent in the solum and 0 to 35 percent in the C horizon
Reaction: Very strongly acid to neutral in the upper solum, moderately acid to moderately alkaline in the BC horizon, and neutral to moderately alkaline in the C and Cr horizons

A, Ap, or E horizon:
Hue—2.5Y or 10YR

Value—3 to 5
Chroma—2 to 4
Texture—silt loam or silty clay loam
Other characteristics—some pedons do not have an E horizon; some pedons have a silty clay loam or silty clay BA horizon that is 3 to 8 inches thick

Bt or 2Bt horizon:
Hue—2.5Y, 10YR, or 7.5YR
Value—4 or 5
Chroma—3 to 8
Texture—silty clay or clay
Other characteristics—some pedons have a BC horizon

C, Cr, 2C, or 2Cr horizon:
Hue—10Y, 5GY, 10GY, 5G, 5Y, 2.5Y, 10YR, or 7.5YR
Value—4 to 6
Chroma—2 to 6
Texture—clay, silty clay or silty clay loam
Other characteristics—the C horizons may have formed in either the residuum from the soft calcareous rocks or in colluvium derived from these rocks; the soft bedrock has clay beds that are 1 inch to more than 12 inches thick in some pedons

Belknap Series

Taxonomic classification: Coarse-silty, mixed, active, acid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Belknap silt loam; on a flood plain in a cultivated field at an elevation of about 430 feet above mean sea level, approximately 350 feet north of the center of the road on the west side of the stream, 1,000 feet east and 1,000 feet north of the center of sec. 33, T. 2 N., R. 12 W.; in Wabash County, Illinois; USGS Saint Francisville, IL-IN topographic quadrangle; lat. 38 degrees 33 minutes 52 seconds N. and long. 87 degrees 44 minutes 50.5 seconds W.; UTM Zone 16, Easting 434889, Northing 4268709, NAD 83:

Ap—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine and medium granular structure; friable; strongly acid; abrupt smooth boundary.
A—7 to 13 inches; dark grayish brown (10YR 4/2) silt loam; weak thin platy structure parting to weak fine granular; friable; slightly compact as a plow pan; few medium faint brown (10YR 5/3) and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; strongly acid; gradual smooth boundary.
Bg—13 to 27 inches; dark grayish brown (10YR 4/2), grayish brown (10YR 5/2), and brown (10YR 5/3) silt loam; weak medium granular structure with a tendency toward subangular blocky; friable; few medium faint light brownish gray (10YR 6/2) iron depletions and common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few iron-manganese concretions; strongly acid; gradual smooth boundary.
Cg1—27 to 59 inches; light brownish gray (10YR 6/2) silt loam; massive; friable; common fine prominent dark reddish brown (2.5YR 3/4) and yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; many iron-manganese concretions increasing in number and size as depth increases; strongly acid; gradual smooth boundary.
Cg2—59 to 80 inches; dark gray (10YR 4/1) silt loam; massive; friable; common

medium faint gray (10YR 6/1) iron depletions and few medium prominent brown (7.5YR 5/4) masses of oxidized iron in the matrix; many iron-manganese concretions; moderately acid.

Range in Characteristics

Depth to base of soil development: Typically 12 to 40 inches but may range to 60 inches
Reaction: Strongly acid or very strongly acid in the particle-size control section

Ap or A horizon:
Hue—10YR
Value—4 to 6 (6 or 7 dry); 3 in some uncultivated areas
Chroma—2 or 3
Texture—silt loam
Reaction—very strongly acid to moderately acid, except in limed areas

Bg or Bw horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 4
Texture—silt loam to a depth of at least 40 inches; some pedons contain strata of loam or silty clay loam at a depth below 40 inches

Cg or C horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam or silt to a depth of at least 40 inches; some pedons contain strata of loam or silty clay loam at a depth below 40 inches

Berks Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Typic Dystrudepts

Typical Pedon

Berks channery loam; in a steep or very steep, wooded area at an elevation of about 578 feet above mean sea level, approximately 943 feet west and 1,104 feet north of the southeast corner of sec. 7, T. 14 S., R. 4 E.; in Massac County, Illinois; USGS Mermet, IL topographic quadrangle; lat. 37 degrees 18 minutes 44 seconds N. and long. 88 degrees 48 minutes 20 seconds W.; UTM Zone 16, Easting 339994, Northing 4131045, NAD 83:

A1—0 to 2 inches; very dark grayish brown (10YR 3/2) channery loam, brown (10YR 5/3) dry; moderate fine granular structure; friable; many roots; about 35 percent sandstone fragments; moderately acid; abrupt smooth boundary.
A2—2 to 4 inches; brown (10YR 4/3) very channery loam, pale brown (10YR 6/3) dry; weak fine granular structure; friable; many roots; about 50 percent sandstone fragments; moderately acid; abrupt smooth boundary.
Bw—4 to 20 inches; dark yellowish brown (10YR 4/4) extremely channery loam; weak fine subangular blocky structure; friable; many roots; about 66 percent sandstone fragments; very strongly acid; gradual smooth boundary.
C—20 to 28 inches; strong brown (7.5YR 5/6) extremely channery loam; massive; friable; common roots; about 75 percent sandstone fragments; very strongly acid; clear smooth boundary.
R—28 inches; sandstone bedrock.

Range in Characteristics

Depth to the top of the cambic horizon: 3 to 12 inches
Thickness of the solum: 12 to 40 inches
Depth to bedrock: 20 to 40 inches
Reaction: Extremely acid to slightly acid

A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 to 4
Fine-earth texture—loam or silt loam
Content of rock fragments—10 to 50 percent

Bw horizon:
Hue—5YR, 7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—loam, silt loam, or silty clay loam
Content of rock fragments—15 to 75 percent

C horizon:
Hue—5YR, 7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 8
Fine-earth texture—loam or silt loam
Content of rock fragments—35 to 90 percent

R horizon:
Bedrock—shale, siltstone, or sandstone

Birds Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents

Typical Pedon

Birds silt loam; on a nearly level flood plain in a cultivated field at an elevation of about 415 feet above mean sea level, approximately 600 feet west and 50 feet north of the center of sec. 13, T. 3 N., R. 12 W.; in Lawrence County, Illinois; Lawrenceville, IL topographic quadrangle; lat. 38 degrees 41 minutes 41 seconds N. and long. 87 degrees 41 minutes 38 seconds W.; UTM Zone 16, Easting 439655, Northing 4283134, NAD 83:

Ap—0 to 6 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; weak fine granular structure; friable; neutral; abrupt smooth boundary.

ACg—6 to 22 inches; gray (10YR 6/1) silt loam; weak fine granular structure; friable; common fine distinct dark yellowish brown (10YR 4/4) and brown (10YR 5/3) masses of oxidized iron and manganese in the matrix; few fine very dark grayish brown (10YR 3/2) extremely weakly cemented iron-manganese accumulations in the matrix; neutral; gradual smooth boundary.

Cg—22 to 60 inches; gray (10YR 6/1) silt loam; massive; friable; common medium and coarse distinct dark yellowish brown (10YR 4/4), prominent light olive brown (2.5Y 5/4), and faint grayish brown (10YR 5/2) masses of oxidized iron and manganese in the matrix; few fine brown (10YR 5/3) iron-manganese concretions throughout; slightly alkaline.

Range in Characteristics

Particle-size control section: Average of 18 to 27 percent clay and less than 15 percent fine or coarser sand
Reaction: Strongly acid to slightly alkaline to a depth of more than 40 inches, but reaction is not strongly acid in all parts within these depths

Ap, A, or ACg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 6 (6 or 7 dry)
Chroma—1 or 2
Texture—silt loam

Cg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—3 to 7
Chroma—1 or 2
Texture—dominantly silt loam; some pedons contain strata of silty clay loam, clay loam, loam, or sandy loam below a depth of 40 inches

Bonnie Series

Taxonomic classification: Fine-silty, mixed, active, acid, mesic Typic Fluvaquents

Typical Pedon

Bonnie silt loam; in a cultivated field on a flood plain at an elevation of about 419 feet above mean sea level, approximately 2,660 feet north and 1,920 feet east of the southwest corner of sec. 21, T. 5 S., R. 4 E.; in Franklin County, Illinois; USGS Ewing, IL topographic quadrangle; lat. 38 degrees 04 minutes 32 seconds N. and long. 88 degrees 46 minutes 17 seconds W.; UTM Zone 16, 344630 Easting, 4215680 Northing, NAD 83:

Ap1—0 to 5 inches; brown (10YR 5/3) silt loam; weak fine granular structure; friable; common fine and medium roots throughout; common fine spherical extremely weakly cemented iron-manganese accumulations; slightly acid; abrupt smooth boundary.
Ap2—5 to 10 inches; light brownish gray (10YR 6/2) and dark grayish brown (10YR 4/2) silt loam; weak medium angular blocky structure parting to weak medium platy; friable; common fine and medium roots throughout; common fine and medium faint brown (10YR 4/3) masses of oxidized iron and manganese; common fine spherical extremely weakly cemented iron-manganese accumulations; moderately acid; abrupt smooth boundary.
Cg1—10 to 27 inches; gray (10YR 6/1) and light gray (10YR 7/1) silt loam; massive; friable; few very fine roots throughout; common fine and medium prominent yellowish brown (10YR 5/4 and 5/6) masses of oxidized iron and common medium faint grayish brown (10YR 5/2) iron depletions; common fine spherical extremely weakly cemented iron-manganese accumulations; very strongly acid; clear smooth boundary.
Cg2—27 to 80 inches; gray (10YR 6/1) silt loam; massive; friable; common fine and medium prominent yellowish brown (10YR 5/4 and 5/6) masses of oxidized iron; common fine spherical extremely weakly cemented iron-manganese accumulations; very strongly acid.

Range in Characteristics

Particle-size control section: Average of 18 to 27 percent clay and less than 10 percent sand
Reaction: Strongly acid or very strongly acid at a depth of 10 to 40 inches and very strongly acid to slightly alkaline below a depth of 40 inches

A or Ap horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 3
Texture—silt loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—5 to 7
Chroma—0 to 2
Texture—commonly silt loam; less commonly silty clay loam below a depth of 40 inches

Burnside Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Fluventic Dystrudepts

Typical Pedon

Burnside silt loam; in a nearly level to undulating, narrow flood plain on a bedrock-controlled upland in a hayfield at an elevation of about 475 feet above sea level, approximately 4 miles southeast of Vienna, about 1,280 feet east and 1,100 feet south of the center of sec. 14, T. 13 S., R. 3 E.; in Johnson County, Illinois; USGS Bloomfield, IL topographic quadrangle; lat. 37 degrees 23 minutes 18 seconds N. and long. 88 degrees 50 minutes 46 seconds W.; UTM Zone 16, Easting 336576, Northing 4139536, NAD 83:

A1—0 to 4 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; common gravel and cobbles; very strongly acid; clear smooth boundary.
A2—4 to 8 inches; dark yellowish brown (10YR 4/4) silt loam; weak thin platy structure; friable; few gravel and sandstone flagstones; very strongly acid; clear smooth boundary.
Bw1—8 to 17 inches; dark yellowish brown (10YR 4/4) silt loam; weak very fine and fine granular and weak very fine subangular blocky structure; friable; few sandstone flagstones and gravel; very strongly acid; abrupt smooth boundary.
2Bw2—17 to 33 inches; dark yellowish brown (10YR 4/4) extremely flaggy loam; common medium faint light yellowish brown (10YR 6/4) mottles; weak fine subangular blocky structure; friable; about 75 percent of this layer is larger than 2 mm and consists of sandstone flagstones and some iron-manganese concretions; strongly acid; clear smooth boundary.
2C—33 to 57 inches; dark yellowish brown (10YR 4/4) extremely flaggy loam; common medium faint light yellowish brown (10YR 6/4) mottles; massive; friable; about 80 percent of this layer is larger than 2 mm and consists of sandstone flagstones and some iron-manganese concretions; somewhat cemented when dry; strongly acid; abrupt smooth boundary.
2R—57 to 60 inches; sandstone bedrock.

Range in Characteristics

Thickness of loamy alluvium: 12 to 24 inches

Thickness of the solum: 16 to 40 inches
Depth to bedrock: 40 to 80 inches
Reaction: Strongly acid or very strongly acid in the particle-size control section

A and Bw horizons:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Fine-earth texture—silt loam or loam
Content of rock fragments—0 to 35 percent

2Bw horizon:
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Fine-earth texture—silt loam or loam
Content of rock fragments—25 to 80 percent

2C horizon:
Hue—10YR
Value—4 or 5
Chroma—3 or 4
Fine-earth texture—loam, silt loam, or sandy loam
Content of rock fragments—50 to 90 percent

2Cr horizon (if it occurs):
Bedrock—soft sandstone (rippable)

2R horizon:
Bedrock—hard sandstone

Cape Series

Taxonomic classification: Fine, smectitic, acid, mesic Vertic Endoaquepts

Typical Pedon

Cape silty clay loam; on a nearly level or depressional flood plain in a cultivated field at an elevation of about 375 feet above mean sea level, approximately 2 miles southwest of Carrier Mills, about 1,290 feet north and 660 feet west of the center of sec. 10, T. 10 S., R. 5 E.; in Saline County, Illinois; USGS Carrier Mills, IL topographic quadrangle; lat. 37 degrees 40 minutes 08 seconds N. and long. 88 degrees 38 minutes 45 seconds W.; UTM Zone 16, Easting 354838, Northing 4170366, NAD 83:

Ap—0 to 10 inches; dark gray (10YR 4/1) silty clay loam; weak medium angular blocky structure; very firm; neutral; abrupt smooth boundary.

Bg1—10 to 22 inches; dark gray (10YR 4/1) silty clay loam; moderate coarse prismatic structure parting to weak medium angular blocky; very firm; common medium distinct brown (10YR 4/3) masses of oxidized iron and manganese in the matrix; common prominent threadlike extremely weakly cemented iron-manganese accumulations on surfaces along root channels; strongly acid; clear smooth boundary.

Bg2—22 to 28 inches; gray (10YR 5/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; very firm; common medium distinct brown (10YR 4/3) masses of oxidized iron and manganese in the matrix; prominent threadlike extremely weakly cemented iron-manganese accumulations on surfaces along root channels; strongly acid; clear smooth boundary.

Bg3—28 to 35 inches; gray (10YR 5/1 and 6/1) and dark gray (10YR 4/1) silty clay;

weak coarse prismatic structure parting to weak medium and coarse angular blocky; very firm; common medium prominent dark reddish brown (5YR 3/3) masses of oxidized iron and manganese in the matrix; few prominent threadlike extremely weakly cemented iron-manganese accumulations on surfaces along root channels; strongly acid; clear smooth boundary.

Bg4—35 to 45 inches; gray (10YR 5/1) and grayish brown (10YR 5/2) silty clay; weak coarse angular blocky structure; firm; common medium distinct pale brown (10YR 6/3) and faint dark grayish brown (10YR 4/2) masses of oxidized iron and manganese in the matrix; common prominent threadlike extremely weakly cemented iron-manganese accumulations on surfaces along root channels; strongly acid; gradual smooth boundary.

Cg—45 to 80 inches; gray (10YR 6/1), light gray (10YR 7/1), and grayish brown (10YR 5/2) silty clay loam; massive; firm; common medium distinct pale brown (10YR 6/3) masses of oxidized iron and manganese in the matrix; common prominent threadlike extremely weakly cemented iron-manganese accumulations on surfaces along root channels; strongly acid.

Range in Characteristics

Depth to the base of the cambic horizon: 40 to more than 60 inches
Particle-size control section: Average of 40 to 55 percent clay

Ap or A horizon:
Hue—10YR or 2.5Y
Value—4 or 5 (5 or 6 dry)
Chroma—1 or 2
Texture—silty clay loam, silty clay, or clay; silt loam in overwash phases

Bg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 6 (5 to 7 dry)
Chroma—0 to 2
Texture—silty clay or clay; silty clay loam in upper part in some pedons

Cg horizon:
Hue—10YR, 2.5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay

Darwin Series

Taxonomic classification: Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls

Typical Pedon

Darwin silty clay; on a nearly level flood plain in a cultivated field at an elevation of about 433 feet above mean sea level, approximately 2.5 miles west of Russellville, 2,320 feet north and 110 feet east of the center of sec. 6, T. 4 N., R. 10 W.; in Lawrence County, Illinois; USGS Russellville, IL topographic quadrangle; lat. 38 degrees 49 minutes 14.5 seconds N. and long. 87 degrees 33 minutes 59.5 seconds W.; UTM Zone 16, Easting 450817, Northing 4297036, NAD 83:

Ap—0 to 7 inches; very dark gray (10YR 3/1) silty clay, dark gray (10YR 4/1) dry; weak very fine granular structure in the upper part and moderate fine and medium angular blocky structure in the lower part; very firm; slightly acid; abrupt smooth boundary.

A—7 to 14 inches; very dark gray (N 3/0) silty clay, dark gray (10YR 4/1) dry; weak

medium prismatic structure parting to moderate medium angular blocky; firm; few fine prominent dark yellowish brown (10YR 3/4) masses of oxidized iron and manganese in the matrix; neutral; gradual smooth boundary.

Bg1—14 to 24 inches; dark gray (5Y 4/1) silty clay; weak medium prismatic structure parting to moderate medium and coarse angular blocky; firm; common fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral; gradual smooth boundary.

Bg2—24 to 33 inches; dark gray (5Y 4/1) silty clay; weak coarse prismatic structure parting to moderate medium angular blocky; firm; common fine and medium prominent yellowish brown (10YR 5/4 and 5/6) masses of oxidized iron in the matrix; few fine dark olive brown (2.5Y 3/3) iron-manganese concretions throughout; neutral; gradual smooth boundary.

Bg3—33 to 46 inches; gray (5Y 5/1) silty clay; weak coarse prismatic structure parting to weak medium angular blocky; firm; few medium carbonate concretions increasing in number in the lower part of the horizon; common fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine dark olive brown (2.5Y 3/3) iron-manganese concretions throughout; slightly alkaline; abrupt wavy boundary.

BCg—46 to 56 inches; gray (5Y 5/1) silty clay loam; weak medium and coarse angular blocky structure; very firm; many fine prominent brown (7.5YR 4/4) and strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; slightly alkaline; gradual smooth boundary.

Cg—56 to 80 inches; gray (5Y 5/1) silty clay loam; massive; firm; many fine and medium prominent yellowish brown (10YR 5/6 and 5/8) masses of oxidized iron in the matrix; slightly alkaline.

Range in Characteristics

Thickness of the mollic epipedon: 10 to 24 inches
Depth to the base of the cambic horizon: 40 to 60 inches
Particle-size control section: Average of 45 to 60 percent clay
Series control section: Average of 5 percent sand or less

Ap or A horizon:
Hue—10YR, 2.5Y, or neutral
Value—2 or 3
Chroma—0 to 2
Texture—dominantly silty clay; silty clay loam or clay in some pedons
Clay content—average of 40 to 45 percent; ranging from 35 to 60 percent
Reaction—slightly acid to slightly alkaline

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 2
Texture—dominantly silty clay; horizons of clay occur in some pedons
Clay content—45 to 60 percent
Reaction—slightly acid to slightly alkaline; carbonates occur in the lower part in some pedons

BCg or Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam, silty clay, or clay
Clay content—30 to 55 percent
Reaction—neutral to moderately alkaline; carbonates occur in some pedons

Dupo Series

Taxonomic classification: Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents

Typical Pedon

Dupo silt loam; on a nearly level flood plain in a cultivated field at an elevation of about 390 feet above mean sea level, approximately 2 1/2 miles west of Modoc at State Plane Coordinates 506,150 feet north and 526,600 feet east (Illinois West Zone), T. 5 S., R. 9 W.; in Randolph County, Illinois; USGS Prairie Du Rocher, IL-MO topographic quadrangle; lat. 38 degrees 03 minutes 20 seconds N. and long. 90 degrees 04 minutes 28 seconds W.; UTM Zone 15, Easting 756679, Northing 4216026, NAD 83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; weak fine granular structure; very friable; many very fine and fine roots; few very fine continuous tubular pores; few fine prominent strong brown (7.5YR 5/6) spherical masses of oxidized iron in the matrix; slightly alkaline; abrupt smooth boundary.

C1—9 to 17 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; few very fine continuous tubular pores; common fine faint grayish brown (10YR 5/2) iron depletions and common fine faint yellowish brown (10YR 5/4) and few fine prominent strong brown (7.5YR 5/6) irregular masses of oxidized iron in the matrix; slightly alkaline; clear smooth boundary.

C2—17 to 25 inches; brown (10YR 5/3) silt loam; massive; very friable; common very fine and fine roots; common very fine and fine continuous tubular pores; common very dark grayish brown (10YR 3/2) wormcasts; many medium faint grayish brown (10YR 5/2) iron depletions in the matrix; many medium faint dark yellowish brown (10YR 4/4) and few fine prominent strong brown (7.5YR 5/6) irregular masses of oxidized iron in the matrix; neutral; abrupt smooth boundary.

2Ab1—25 to 39 inches; very dark gray (10YR 3/1) silty clay; moderate medium prismatic structure parting to strong fine angular blocky; very firm; few very fine and fine roots; common fine constricted tubular pores; common distinct dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common fine distinct dark yellowish brown (10YR 4/4) and common medium prominent yellowish red (5YR 4/6) masses of oxidized iron and manganese in the matrix; neutral; clear smooth boundary.

2Ab2—39 to 59 inches; very dark gray (10YR 3/1) silty clay; moderate coarse prismatic structure parting to moderate medium angular blocky; very firm; few very fine and fine roots; few fine and medium constricted tubular pores; few faint dark yellowish brown (10YR 4/4) clay depletions on vertical faces of prisms; common faint very dark gray (10YR 3/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) and few medium prominent strong brown (7.5YR 4/6) masses of oxidized iron and manganese in the matrix; neutral; gradual smooth boundary.

2Bgb—59 to 75 inches; dark gray (10YR 4/1) silty clay; weak coarse prismatic structure; very firm; few very fine and fine roots; common distinct dark gray (10YR 4/1) pressure faces on faces of peds; common fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron and manganese in the matrix; slightly alkaline; gradual smooth boundary.

2Cssg—75 to 80 inches; gray (2.5Y 5/1) clay; massive; very firm; common shiny dark gray (2.5Y 4/1) nonintersecting slickensides; common fine medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; neutral.

Range in Characteristics

Depth to a buried soil: 20 to 40 inches
Particle-size control section: Average of 10 to 18 percent clay in the silty alluvium, 35

to 55 percent clay in the buried horizons, and less than 10 percent sand throughout the soil profile

Ap or A horizon:
Hue—10YR
Value—typically 4 or 5; strata with value of 3 occur in some undisturbed pedons
Chroma—1 to 3
Texture—horizon is silt loam or silt and is stratified in many undisturbed pedons

C horizon:
Hue—10YR
Value—4 to 6
Chroma—1 to 3
Texture—dominantly silt loam; horizon is stratified with thin lenses of other textures in some pedons

2Ab horizon:
Hue—10YR or neutral
Value—2 to 4
Chroma—0 to 2
Texture—silty clay, clay, or silty clay loam

2Bgb, 2Cssg, and 2Cg horizons (if they occur):
Hue—10YR or yellower
Value—3 to 6
Chroma—1 or 2
Texture—silty clay, clay, or silty clay loam

Ginat Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Endoaqualfs

Typical Pedon

Ginat silt loam; on a terrace in a cultivated field at an elevation of about 332 feet above mean sea level, approximately 300 feet north and 120 feet east of the southwest corner of the NE1/4 SE1/4 of sec. 3, T. 14 S., R. 5 E.; in Pope County, Illinois; USGS Reevesville, IL topographic quadrangle; lat. 37 degrees 19 minutes 32 seconds N. and long. 88 degrees 38 minutes 27 seconds W.; UTM Zone 16, Easting 354620, Northing 4132245, NAD 83:

Ap—0 to 6 inches; brown (10YR 5/3) silt loam, light gray (10YR 7/2) dry; moderate medium and coarse granular structure; friable; common fine and very fine black (N 2.5/0), strong brown (7.5YR 5/8), and dark brown (7.5YR 3/2) iron-manganese concretions; very strongly acid; clear smooth boundary.
E1—6 to 11 inches; pale brown (10YR 6/3) silt loam; weak medium platy structure; firm to friable; common fine vesicular pores; few fine faint light gray (10YR 7/1) iron depletions; many fine and very fine black (N 2.5/0), dark brown (7.5YR 3/2), and brown (7.5YR 4/4) iron-manganese concretions; very strongly acid; clear smooth boundary.
E2—11 to 19 inches; light gray (10YR 7/2) silt loam; weak medium subangular blocky structure; friable; common fine vesicular pores; common medium distinct yellowish brown (10YR 5/4) and few fine faint pale brown (10YR 6/3) masses of oxidized iron; many fine and very fine black (N 2.5/0), strong brown (7.5YR 5/8), and dark brown (7.5YR 3/2) iron-manganese concretions; very strongly acid; clear smooth boundary.
BEg—19 to 24 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium

subangular blocky structure; friable to firm; common fine vesicular pores; few fine prominent yellowish brown (10YR 5/8) and few fine faint brown (10YR 5/3) masses of oxidized iron; many fine black (N 2.5/0) and strong brown (7.5YR 5/8) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg—24 to 34 inches; light brownish gray (2.5Y 6/2) silty clay loam; weak medium prismatic structure parting to weak medium subangular blocky; firm; few faint grayish brown (2.5Y 5/2) clay films on faces of peds; common fine faint light gray (2.5Y 7/2) iron depletions; few fine yellowish red (5YR 5/6) and many fine black (N 2.5/0), brown (7.5YR 4/4), and strong brown (7.5YR 5/8) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btxg1—34 to 43 inches; grayish brown (2.5Y 5/2) silty clay loam; weak medium prismatic structure parting to moderate fine and medium subangular blocky; very firm; few faint grayish brown (2.5Y 5/2) clay films and few faint light brownish gray (10YR 6/2) silt coats on faces of peds; few fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron and manganese; common fine black (N 2.5/0) and strong brown (7.5YR 5/6) iron-manganese concretions; brittle; very strongly acid; clear smooth boundary.

Btxg2—43 to 49 inches; grayish brown (2.5Y 5/2) silty clay loam; moderate fine subangular blocky structure; very firm; few faint grayish brown (2.5Y 5/2) clay films on faces of peds; common fine prominent light olive brown (2.5Y 5/6) and common fine distinct dark yellowish brown (10YR 4/4) masses of oxidized iron and manganese; few fine faint light gray (10YR 7/2) iron depletions; brittle; very strongly acid; clear smooth boundary.

B´tg—49 to 55 inches; grayish brown (10YR 5/2) silty clay loam; weak fine subangular blocky structure; firm; few faint grayish brown (10YR 5/2) clay films on faces of peds; common fine faint light gray (10YR 7/2) iron depletions and few medium distinct dark yellowish brown (10YR 4/4) masses of oxidized iron and manganese; few fine black (N 2.5/0) iron-manganese concretions; very strongly acid; clear smooth boundary.

2Bt1—55 to 65 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak coarse subangular blocky structure; firm; few prominent gray (10YR 6/1) and brown (7.5YR 5/2) clay films on faces of peds; many fine distinct and common medium distinct grayish brown (10YR 5/2) iron depletions; few fine distinct black (10YR 2/1) manganese coatings on faces of peds; very strongly acid; clear smooth boundary.

2Bt2—65 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few distinct gray (10YR 6/1) clay films in root and worm channels and pores; few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron; common medium distinct light brownish gray (10YR 6/2) iron depletions; few very fine distinct black (10YR 2/1) manganese coatings on faces of peds; strongly acid.

Range in Characteristics

Depth to the base of the argillic horizon: More than 60 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—1 to 3
Texture—silt loam
Reaction—strongly acid or very strongly acid; ranging to neutral in limed areas

E horizon:
Hue—10YR
Value—5 to 7

Chroma—1 to 3
Texture—silt loam
Reaction—strongly acid or very strongly acid; ranging to neutral in limed areas

BEg and Btg horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—very strongly acid to moderately acid

Btxg or B´tg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—very strongly acid or strongly acid

2Bt or 2Btg horizon:
Hue—10YR, 2.5Y, or 5Y
Value—4 to 7
Chroma—1 to 4
Texture—commonly silt loam or silty clay loam; less commonly silty clay, clay loam, or loam
Clay content—21 to 42 percent
Sand content—5 to 25 percent
Content of rock fragments—0 to 5 percent pebbles
Reaction—strongly acid to slightly alkaline

The Ginat soils in this survey area are considered a taxadjunct to the series because they have fragic soil properties in the lower part of the control section that are not defined for the series. This difference, however, does not significantly affect the use and management of the soils. The taxadjunct classifies as fine-silty, mixed, active, mesic Fragic Epiaqualfs.

Grantsburg Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Grantsburg silt loam; on a southwest-facing, convex slope of 7 percent in a wooded area at an elevation of about 500 feet above mean sea level, approximately 2 miles south of Glendale at the University of Illinois Dixon Springs Agricultural Experiment Station, 992 feet east and 106 feet south of northwest corner of sec. 4, T. 13 S., R. 5 E.; in Pope County, Illinois; USGS Glendale Quadrangle; lat. 37 degrees 25 minutes 30 seconds N. and long. 88 degrees 40 minutes 07 seconds W.; UTM Zone 16, Easting 352358, Northing 4143340, NAD 83:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; many roots; very strongly acid; abrupt smooth boundary.
E—2 to 7 inches; brown (10YR 5/3) silt loam; weak medium granular structure; friable; many roots; very strongly acid; clear smooth boundary.
BE—7 to 12 inches; strong brown (7.5YR 5/6) silt loam; weak fine subangular blocky structure; friable; many roots; very strongly acid; gradual smooth boundary.

Bt1—12 to 20 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common roots; few distinct brown (7.5YR 5/4) clay films on faces of peds; few black (10YR 2/1) iron-manganese concretions; very strongly acid; gradual smooth boundary.

Bt2—20 to 24 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; few roots; many prominent light gray (10YR 7/1) silt coatings on faces of peds and as filling between peds (E part); few distinct brown (7.5YR 5/4) clay films on faces of peds; very strongly acid; abrupt smooth boundary.

Bt/E—24 to 27 inches; brown (10YR 5/3) silty clay loam (Bt part); moderate fine subangular blocky structure; firm; common roots; few black (10YR 2/1) iron-manganese concretions; very strongly acid; clear smooth boundary.

B´t—27 to 38 inches; yellowish brown (10YR 5/4) silty clay loam; weak coarse prismatic structure parting to moderate medium angular and subangular blocky; very firm and slightly brittle, hard; few roots; common distinct brown (7.5YR 4/4) clay films on faces of peds and lining pores and channels; few white (10YR 8/1) uncoated silt grains on faces of peds; common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron and common medium distinct light gray (10YR 7/1) iron depletions; few black (N 2.5/0) iron-manganese concretions throughout; very strongly acid; clear smooth boundary.

Btx1—38 to 52 inches; yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure parting to weak coarse angular and subangular blocky; very firm and hard; few roots, mostly confined to cracks between peds; few distinct brown (7.5YR 4/4) clay films on faces of peds and lining pores and some old root channels; light gray (10YR 7/1) silt or silt loam fillings in vertical cracks about $^1/_2$ to $1^1/_2$ inches in width that surround the polygons of the prismatic structure; common medium prominent strong brown (7.5YR 5/8) masses of oxidized iron and common medium distinct light gray (10YR 7/1) iron depletions; few black (N 2.5/0) iron-manganese concretions throughout; brittle; very strongly acid; clear smooth boundary.

Btx2—52 to 61 inches; yellowish brown (10YR 5/4) silt loam; moderate very coarse prismatic structure parting to weak coarse angular blocky; very firm and hard; few roots, mostly confined to cracks between peds; few distinct dark yellowish brown (10YR 4/4) clay films on vertical faces of peds and lining a few old wormholes and root channels; light gray (10YR 7/1) silt or silt loam fillings in vertical cracks that surround the polygons of the prismatic structure; common medium prominent brownish yellow (10YR 6/8) masses of oxidized iron and common medium distinct light brownish gray (10YR 6/2) iron depletions; few black (N 2.5/0) iron-manganese concretions throughout; brittle; strongly acid; gradual smooth boundary.

C—61 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; common medium prominent brownish yellow (10YR 6/8) masses of oxidized iron and common medium distinct light brownish gray (10YR 6/2) iron depletions; moderately acid.

Range in Characteristics

Depth to the top of the argillic horizon: 8 to 23 inches
Depth to second sequum (Bt/E and B´t horizons): 20 to 36 inches
Depth to fragipan: 24 to 40 inches
Thickness of the solum: 48 to more than 70 inches
Depth to bedrock: 5 to 12 feet
Particle-size control section: Average of 25 to 35 percent clay and 2 to 10 percent sand
Reaction of the subsoil: Strongly acid to extremely acid

A horizon:

Hue—10YR
Value—3 or 4
Chroma—2 or 3
Texture—silt loam; including silty clay loam in some severely eroded pedons

E horizon:

Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—silt loam or silty clay loam

BE horizon:

Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam
Other characteristics—clay films or silt coats occur on the faces of peds in some pedons

Bt horizon:

Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

Bt/E horizon:

Hue—10YR or 7.5YR (Bt part); 10YR (E part)
Value—4 to 6 (Bt part); 5 to 8 (E part)
Chroma—3 to 6 (Bt part); 1 to 4 (E part)
Texture—silty clay loam or silt loam (Bt part); silt or silt loam (E part)

B´t horizon:

Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture—silt loam or silty clay loam
Other characteristics—the B´t horizon is firm or very firm and typically brittle in some part, but brittleness in not observed in all pedons; clay films are on both vertical and horizontal faces of peds

Btx or 2Btx horizon:

Hue—10YR or 7.5YR
Value—4 to 6
Chroma—4 to 6
Texture—silt loam or silty clay loam (horizon averages less than 10 percent sand, by volume)
Other characteristics—primary structure is very coarse prismatic and the polygons are separated or surrounded by cracks filled with silt that has grayer color and typically less clay than the interiors of the polygons

C or 2C horizon (if it occurs):

Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 8
Texture—silt loam or silty clay loam

Hatfield Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aeric Fragic Epiaqualfs

Typical Pedon

Hatfield silt loam; in a nearly level, brushy wildlife area on the east side of Mermet Lake at an elevation of about 430 feet above mean sea level, approximately 1,950 feet north and 574 feet east of the southwest corner of sec. 36, T. 14 S., R. 3 E.; in Massac County, Illinois; USGS Mermet, IL topographic quadrangle; lat. 37 degrees 15 minutes 17 seconds N. and long. 88 degrees 50 minutes 14 seconds W.; UTM Zone 16, Easting 337069, Northing 4124701, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry and brown (10YR 4/3) crushed; moderate medium granular structure; friable; strongly acid; abrupt smooth boundary.

E—7 to 14 inches; yellowish brown (10YR 5/4) silt loam; weak very thick platy structure parting to weak coarse granular; friable; many medium distinct light gray (10YR 7/2) iron depletions and few fine distinct brownish yellow (10YR 6/6) masses of oxidized iron in the matrix; common very fine black (N 2.5/0) and very dark grayish brown (10YR 3/2) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg1—14 to 25 inches; light brownish gray (10YR 6/2) silty clay loam: moderate medium prismatic structure parting to moderate medium subangular blocky and weak fine angular blocky; very firm; many faint brown (10YR 5/3) clay films on faces of peds; many fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; common very fine dark brown (7.5YR 3/2) and strong brown (7.5YR 5/6) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btg2—25 to 36 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to moderate medium subangular blocky and moderate fine angular blocky; very firm; common faint brown (10YR 5/3) clay films on faces of peds; many very fine faint light gray (10YR 7/2) iron depletions and many fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; many fine black (N 2.5/0), dark brown (7.5YR 3/2), and strong brown (7.5YR 5/6) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btx—36 to 45 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium subangular blocky structure; firm; few faint light yellowish brown (10YR 6/4) clay films on faces of peds; common fine distinct light gray (10YR 7/2) and light brownish gray (10YR 6/2) iron depletions; many fine dark brown (7.5YR 3/2) and strong brown (7.5YR 5/6) iron-manganese concretions; slightly brittle; very strongly acid; gradual smooth boundary.

BC1—45 to 59 inches; brown (7.5YR 4/4) silt loam; weak coarse subangular blocky structure; firm to friable; common fine and medium distinct light brownish gray (10YR 6/2) and pale brown (10YR 6/3) iron depletions; common fine dark brown (7.5YR 3/2) and black (N 2.5/0) iron-manganese concretions; slightly acid; gradual wavy boundary.

BC2—59 to 80 inches; dark yellowish brown (10YR 4/4) silt loam containing silty clay loam lenses; weak coarse subangular blocky structure; friable; common fine distinct yellowish brown (10YR 5/6) masses of oxidized iron; common very fine dark brown (7.5YR 3/2) iron-manganese concretions; moderately acid.

Range in Characteristics

Depth to fragic soil properties: 30 to 45 inches
Depth to the base of soil development: More than 80 inches

Ap or A horizon:
Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Reaction—strongly acid to neutral

E horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam
Reaction—strongly acid to neutral

Bt horizon (if it occurs):
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—4 to 6
Texture—silt loam or silty clay loam
Reaction—strongly acid or moderately acid

Btg horizon:
Hue—10YR or 2.5Y
Value—5 to 7
Chroma—1 or 2
Texture—silt loam or silty clay loam
Reaction—very strongly acid or strongly acid

Btx horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—2 to 6
Texture—commonly silt loam or silty clay loam; less commonly loam or clay loam
Reaction—very strongly acid or strongly acid in the upper part; ranging to slightly acid in the lower part

BC horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 6
Texture—horizon is silt loam, silty clay loam, clay loam, or loam or is stratified with these textures
Reaction—strongly acid to slightly alkaline

Haymond Series

Taxonomic classification: Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts

Typical Pedon

Haymond silt loam; on a nearly level flood plain in a cultivated field at an elevation of about 360 feet above mean sea level, approximately 4 miles northwest of Jonesboro, about 1,650 feet south and 530 feet east of the northwest corner of sec. 21, T. 12 S., R. 2 W.; in Union County, Illinois; USGS Jonesboro topographic quadrangle; lat. 37

degrees 27 minutes 45 seconds N. and long. 89 degrees 20 minutes 19 seconds W.; UTM Zone 16, Easting 293167, Northing 4148751, NAD 83:

Ap—0 to 10 inches; brown (10YR 4/3) silt loam, light brownish gray (10YR 6/2) dry; weak medium granular structure; friable; moderately acid; gradual smooth boundary.

A—10 to 20 inches; brown (10YR 4/3) silt loam; weak medium granular structure; very friable; moderately acid; gradual smooth boundary.

Bw1—20 to 42 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; moderately acid; gradual smooth boundary.

Bw2—42 to 60 inches; yellowish brown (10YR 5/4) silt loam that has pockets of pale brown (10YR 6/3) material; weak fine subangular blocky structure; friable; moderately acid; gradual smooth boundary.

C—60 to 80 inches; pale brown (10YR 5/3) silt loam; massive; friable; moderately acid.

Range in Characteristics

Depth to the base of the cambic horizon: 30 to 60 inches

Other characteristics: Loamy strata that may contain pebbles or flagstones are below a depth of 40 inches

Ap or A horizon:

Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silt

Bw horizon:

Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam

C horizon:

Hue—10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam, fine sandy loam, sandy loam, or loam

Hosmer Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Hosmer silt loam; in a nearly level to rolling open area at an elevation of about 790 feet above mean sea level, approximately 3$^1/_4$ miles northwest of Lick Creek, about 1,200 feet north and 2,225 feet east of the southwest corner of sec. 16, T. 11 S., R. 1 E.; in Union County, Illinois; USGS Lick Creek, IL topographic quadrangle; lat. 37 degrees 33 minutes 35 seconds N. and long. 89 degrees 06 minutes 32 seconds W.; UTM Zone 16, Easting 313716, Northing 4159068, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; moderate thin platy structure parting to weak fine granular and weak very fine subangular blocky; friable; common krotovinas; many roots; neutral; abrupt smooth boundary.

Bt1—7 to 18 inches; brown (10YR 5/3) silty clay loam; moderate fine and medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR

4/4) clay films on faces of peds; few krotovinas; common vesicular pores; common fine iron-manganese concretions; strongly acid; gradual smooth boundary.

Bt2—18 to 25 inches; yellowish brown (10YR 5/4) silt loam; moderate fine and medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; few medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; few fine distinct light brownish gray (10YR 6/2) iron depletions; few fine extremely weakly cemented iron-manganese accumulations; strongly acid; abrupt smooth boundary.

Bt/E—25 to 28 inches; yellowish brown (10YR 5/6) silt loam (Bt part); moderate fine and medium subangular blocky structure; firm; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many distinct thin to thick clay depletions of light brownish gray (10YR 6/2) silt (E part); common fine iron-manganese concretions; strongly acid; abrupt smooth boundary.

Btx1—28 to 35 inches; yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), and light brownish gray (2.5Y 6/2) silty clay loam; moderate very coarse and medium prismatic structure; very firm; many prominent grayish brown (2.5Y 5/2) clay films on faces of peds; many distinct light brownish gray (2.5Y 6/2) clay depletions on faces of peds; common extremely weakly cemented iron-manganese accumulations; common manganese coatings on vertical faces of peds; brittle; strongly acid; gradual smooth boundary.

Btx2—35 to 55 inches; yellowish brown (10YR 5/6), dark yellowish brown (10YR 4/4), and light brownish gray (2.5Y 6/2) silty clay loam; moderate very coarse and medium prismatic structure; very firm; many distinct grayish brown (2.5Y 5/2) and brown (10YR 5/3) clay films on vertical and horizontal faces of peds; few manganese coatings on vertical faces of peds; brittle; strongly acid; gradual smooth boundary.

Btx3—55 to 67 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure; very firm; few distinct grayish brown (2.5Y 5/2) clay films on faces of peds; many coarse distinct light brownish gray (2.5Y 6/2) iron depletions; common manganese coatings on vertical faces of peds; brittle; moderately acid; gradual smooth boundary.

Btx4—67 to 80 inches; yellowish brown (10YR 5/4) silt loam; weak very coarse prismatic structure; firm; common medium prominent light olive gray (5Y 6/2) iron depletions; common manganese coatings in some vertical cracks and in old root channels; brittle; moderately acid.

Range in Characteristics

Depth to the fragipan: 20 to 36 inches
Depth to the base of the argillic horizon: 50 to more than 80 inches
Thickness of loess: 7 to more than 12 feet
Particle-size control section: Average of 18 to 33 percent clay and 2 to 10 percent sand

Ap horizon:
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—typically silt loam; silty clay loam in some severely eroded pedons

E horizon (if it occurs):
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 6
Texture—silt loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

Bt/E horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—2 to 6
Texture—silt loam (Bt part); silt (E part)

Btx horizon:
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silt loam or silty clay loam

Karnak Series

Taxonomic classification: Fine, smectitic, nonacid, mesic Vertic Endoaquepts

Typical Pedon

Karnak silty clay; in a nearly level cultivated field at an elevation of about 350 feet above mean sea level, approximately 3 miles east of Karnak, about 230 feet north and 2,800 feet west of the southeast corner of sec. 18, T. 14 S., R. 3 E.; in Massac County, Illinois; USGS Karnak, IL topographic quadrangle; lat. 37 degrees 17 minutes 28 seconds N. and long. 88 degrees 55 minutes 20 seconds W.; UTM Zone 16, Easting 329612, Northing 4128909, NAD 83:

Ap—0 to 5 inches; very dark grayish brown (10YR 3/2) silty clay, gray (10YR 6/1) and light brownish gray (10YR 6/2) dry; weak fine granular structure; firm; slightly acid; abrupt smooth boundary.

Bg1—5 to 12 inches; dark gray (5Y 4/1) silty clay; weak medium and fine subangular blocky structure; firm; few faint dark gray (5Y 4/1) pressure faces on faces of peds; few fine distinct olive (5Y 5/4) masses of oxidized iron and manganese in the matrix; few prominent yellowish brown (10YR 5/6 and 5/8) masses of oxidized iron on surfaces in root channels; slightly acid; clear smooth boundary.

Bg2—12 to 20 inches; dark gray (5Y 4/1) silty clay; weak very fine and fine prismatic structure parting to weak medium and fine subangular blocky; firm; few faint dark gray (5Y 4/1) pressure faces on faces of peds; few faint dark gray (5Y 4/1) clay films on surfaces in root channels; common fine prominent light olive brown (2.5Y 5/6) masses of oxidized iron in the matrix; common fine black (N 2.5/0) and yellowish brown (10YR 5/8) iron-manganese concretions; slightly acid; clear smooth boundary.

Bg3—20 to 33 inches; dark gray (5Y 4/1) silty clay; moderate medium prismatic structure parting to weak very fine angular blocky; firm; few distinct gray (N 5/0) clay films on surfaces in root channels; common fine prominent light olive brown (2.5Y 5/6) and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common fine yellowish brown (10YR 5/8) iron-manganese concretions; slightly acid; clear smooth boundary.

Bg4—33 to 50 inches; dark gray (N 4/0) silty clay; weak fine prismatic structure parting to weak fine subangular blocky; firm; few distinct gray (N 5/0) pressure faces on faces of peds; few fine prominent light olive brown (2.5Y 5/6) and few fine

prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; slightly acid; clear smooth boundary.

Cg—50 to 80 inches; gray (5Y 5/1) silty clay loam; massive; firm; many fine prominent yellowish brown (10YR 5/6 and 5/8) and common fine prominent light olive brown (2.5Y 5/6) masses of oxidized iron in the matrix; few fine faint light gray (5Y 7/1) iron depletions; slightly alkaline.

Range in Characteristics

Depth to the base of the cambic horizon: Typically 45 to 55 inches; ranging from 30 to 60 inches

Particle-size control section: Average of 40 to 60 percent clay

A or Ap horizon:
Hue—10YR
Value—3 to 6 (4 to 6 dry)
Chroma—1 to 3
Texture—silty clay, clay, or silty clay loam; silt loam in overwash map units

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—clay or silty clay

BCg and Cg horizons:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 7
Chroma—0 to 2
Texture—silty clay or silty clay loam; strata with more sand and less clay occur in some pedons

Lamont Series

Taxonomic classification: Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Lamont fine sandy loam; on a moderately steep slope in a cultivated field at an elevation of about 350 feet above mean sea level, approximately 140 feet west of a north-south fence, and 165 feet north of an east-west fence in the NE1/4 NE1/4 SW1/4 SW1/4 of sec. 19, T. 14 S., R. 4 E.; in Massac County, Illinois; USGS Mermet, IL topographic quadrangle; lat. 37 degrees 17 minutes 01 second N. and long. 88 degrees 48 minutes 59 seconds W.; UTM Zone 16, Easting 338972, Northing 4127875, NAD 83:

Ap—0 to 6 inches; brown (10YR 4/3) fine sandy loam; weak very fine granular structure; friable; neutral; clear smooth boundary.

E—6 to 11 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak very thick platy structure; friable; slightly acid; clear smooth boundary.

BE—11 to 17 inches; 80 percent dark yellowish brown (10YR 4/4) and 20 percent yellowish brown (10YR 5/6) fine sandy loam; weak medium prismatic structure; friable; few faint brown (7.5YR 4/4) coatings on faces of peds and in root and worm channels; few fine and very fine pores; moderately acid; clear smooth boundary.

Bt—17 to 27 inches; dark yellowish brown (10YR 4/4) fine sandy loam; weak coarse

prismatic structure; friable; common faint brown (7.5YR 4/4) clay films on faces of peds; moderately acid; abrupt smooth boundary.
C—27 to 80 inches; strong brown (7.5YR 5/6) loamy fine sand; single grain; very friable; strongly acid.

Range in Characteristics

Depth to carbonates: More than 60 inches
Particle-size control section: Average of 10 to 15 percent clay and 60 to 80 percent sand
Rock fragment content: 0 percent throughout the profile

A or Ap horizon:
Hue—10YR
Value—3 in uneroded areas; 3 or 4 in cultivated or eroded areas
Chroma—1 or 2 in uneroded areas; 2 or 3 in cultivated or eroded areas
Texture—fine sandy loam
Clay content—5 to 20 percent
Sand content—50 to 80 percent
Reaction—strongly acid to neutral

E horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—fine sandy loam, sandy loam, or loamy fine sand
Clay content—5 to 20 percent
Sand content—50 to 80 percent
Reaction—strongly acid to neutral

BE horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—fine sandy loam, sandy loam, or loamy fine sand
Clay content—5 to 20 percent
Sand content—50 to 80 percent
Reaction—strongly acid to neutral

Bt horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—fine sandy loam, sandy loam, loam, or sandy clay loam
Clay content—5 to 24 percent
Sand content—35 to 80 percent
Reaction—strongly acid to slightly acid

E and Bt, BC, or C horizon (if it occurs):
Hue—10YR or 7.5YR
Value—3 to 6
Chroma—3 to 6
Texture—fine sandy loam, sandy loam, loamy fine sand, loamy sand, fine sand, or sand
Clay content—2 to 10 percent
Sand content—70 to 95 percent
Reaction—strongly acid to neutral

Menfro Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Typic Hapludalfs

Typical Pedon

Menfro silt loam; in a gently sloping area of a cultivated field, at an elevation of about 560 feet above mean sea level, approximately 1.5 miles northwest of O'Fallon, about 1,500 feet north and 1,500 feet east of the center of sec. 24, T. 2 N., R. 8 W.; in St. Clair County, Illinois; USGS O'Fallon, IL topographic quadrangle; lat. 38 degrees 36 minutes 42 seconds N. and long. 89 degrees 55 minutes 58 seconds W.; UTM Zone 16, Easting 244628, Northing 4277774, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate very fine granular structure; friable; many very fine and few fine roots; about 22 percent clay; moderately acid; abrupt smooth boundary.

E—7 to 10 inches; yellowish brown (10YR 5/4) silt loam, light yellowish brown (10YR 6/4) dry; moderate medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; common fine continuous tubular pores; about 24 percent clay; moderately acid; abrupt smooth boundary.

Bt1—10 to 18 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many faint dark yellowish brown (10YR 4/4) clay films on faces of peds; about 32 percent clay; moderately acid; clear smooth boundary.

Bt2—18 to 35 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate fine and medium subangular blocky structure; firm; common very fine roots; few fine continuous tubular pores; many distinct brown (10YR 4/3) clay films on faces of peds; about 31 percent clay; moderately acid; gradual smooth boundary.

Bt3—35 to 50 inches; dark yellowish brown (10YR 4/4) silty clay loam; moderate medium subangular blocky structure; firm; few very fine roots; few very fine and fine continuous tubular pores; common distinct brown (10YR 4/3) clay films on faces of peds; about 30 percent clay; moderately acid; gradual smooth boundary.

Bt4—50 to 62 inches; dark yellowish brown (10YR 4/4) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few very fine and fine vesicular and tubular pores; few distinct brown (10YR 4/3) clay films on vertical faces of peds; about 28 percent clay; moderately acid; gradual smooth boundary.

Bt5—62 to 70 inches; dark yellowish brown (10YR 4/4) silt loam; weak coarse subangular blocky structure; friable; few very fine roots; common very fine and fine vesicular and tubular pores; few distinct brown (10YR 4/3) clay films lining root channels and pores; about 24 percent clay; slightly acid; gradual smooth boundary.

Bt6—70 to 80 inches; dark yellowish brown (10YR 4/4) silt loam; weak very coarse prismatic structure; very friable; few very fine roots; common very fine and fine vesicular and tubular pores; very few faint brown (10YR 4/3) clay films lining root channels and pores; about 20 percent clay; slightly acid.

Range in Characteristics

Thickness of the solum: Typically 50 to 70 inches; ranging from 30 to 100 inches
Thickness of loess: 6 feet to more than 20 feet
Particle-size control section: Upper 20 inches of the argillic horizon averages between 27 and 35 percent clay and less than 7 percent sand; the horizon with the highest clay content has 30 to 38 percent

Ap horizon:
Hue—10YR

Value—3 to 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam

A horizon (in undisturbed areas):
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—2 or 3
Texture—silt loam

E horizon (if it occurs):
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—3 or 4
Texture—silt loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam; ranging to silt loam in the lower part

C horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 or 4
Texture—silt loam or silty clay loam

Muskingum Series

Taxonomic classification: Fine-loamy, mixed, semiactive, mesic Typic Dystrudepts

Typical Pedon

Muskingum channery silt loam; in a steep to very steep, wooded area at an elevation of about 860 feet above mean sea level; about 2,112 feet east and 2,376 feet north of the southwest corner of sec. 7, T. 11 S., R. 7 E.; in Pope County, Illinois; USGS Herod, IL topographic quadrangle; lat. 37 degrees 34 minutes 35 seconds N. and long. 88 degrees 28 minutes 47 seconds W.; UTM Zone 16, Easting 369339, Northing 4159849, NAD 83:

A1—0 to 1 inch; very dark grayish brown (10YR 3/2) channery silt loam; moderate fine and medium granular structure; friable; about 20 percent rock fragments; moderately acid; clear wavy boundary.
A2—1 to 3 inches; mixed dark grayish brown (10YR 4/2) and yellowish brown (10YR 5/4) channery silt loam; weak fine subangular blocky structure parting to weak fine granular; friable; about 20 percent rock fragments; strongly acid; clear smooth boundary.
Bw1—3 to 7 inches; yellowish brown (10YR 5/4) channery silt loam with a few medium

dark grayish brown (10YR 4/2) areas; weak fine subangular blocky structure parting to weak very fine subangular blocky; friable; many roots; about 20 percent rock fragments; very strongly acid; clear wavy boundary.

Bw2—7 to 13 inches; dark yellowish brown (10YR 4/4) channery silt loam; common fine faint yellowish brown (10YR 5/4) mottles on faces of peds; moderate fine subangular blocky structure between channers; friable; about 30 percent rock fragments; very strongly acid; clear wavy boundary.

Bw3—13 to 20 inches; dark yellowish brown (10YR 4/4) channery silt loam; common fine faint yellowish brown (10YR 5/4) mottles on faces of peds; moderate fine subangular blocky structure; friable; about 25 percent rock fragments; very strongly acid; clear wavy boundary.

Bw4—20 to 34 inches; dark yellowish brown (10YR 4/4) channery loam; strong medium subangular blocky structure parting to strong fine subangular blocky; firm; about 25 percent rock fragments; very strongly acid; clear wavy boundary.

R—34 inches; sandstone bedrock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: 20 to 40 inches
Rock fragments: 5 to 30 percent in the solum and 35 to 80 percent in the C horizon; consisting of sandstone, shale, or siltstone fragments
Reaction: Very strongly acid or strongly acid throughout the profile, except the upper layers in limed areas

A or Ap horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 6
Fine-earth texture—silt loam or loam

E horizon (if it occurs):
Hue—10YR
Value—4 to 6
Chroma—2 to 4
Fine-earth texture—silt loam or loam

Bw horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Fine-earth texture—silt loam or loam
Other characteristics—few faint clay films occur in some pedons

C horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—4 to 6
Fine-earth texture—silt loam or loam
Other characteristics—a Cr horizon occurs in many pedons and is more common in areas of shale or siltstone bedrock; lithochromic mottles in shades of brown, yellow, red, or gray are common in some pedons

R horizon:
Bedrock—commonly hard sandstone, siltstone, or shale but grading to a more fractured and rippable condition in some areas

Neotoma Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Neotoma flaggy silt loam; on a southwest-facing slope under mixed hardwoods at an elevation of approximately 590 feet above mean sea level, about 1,100 feet south and 2,430 feet west of the northeast corner of sec. 20, T. 4 S., R. 9 W.; in Monroe County, Illinois; USGS Ames, IL topographic quadrangle; lat. 38 degrees 10 minutes 36 seconds N. and long. 90 degrees 07 minutes 06 seconds W.; UTM Zone 15, Easting 752430, Northing 4229351, NAD 83:

A—0 to 3 inches; very dark grayish brown (10YR 3/2) flaggy silt loam, grayish brown (10YR 5/2) dry; weak medium granular structure; friable; common fine roots; about 15 percent flagstones and 5 percent channers; neutral; abrupt smooth boundary.

E—3 to 7 inches; brown (10YR 5/3) very flaggy silt loam, very pale brown (10YR 7/3) dry; weak fine subangular blocky structure; friable; common fine roots; few fine faint brown (7.5YR 5/4) masses of oxidized iron in the matrix; about 30 percent flagstones and 20 percent channers; moderately acid; abrupt smooth boundary.

BE—7 to 10 inches; strong brown (7.5YR 5/6) extremely flaggy loam; weak fine subangular blocky structure; friable; few very fine roots; about 45 percent flagstones and 25 percent channers; very strongly acid; clear smooth boundary.

Bt1—10 to 15 inches; strong brown (7.5YR 5/6) extremely flaggy fine sandy loam; weak fine subangular blocky structure; friable; few very fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds; about 40 percent flagstones and 25 percent channers; very strongly acid; gradual smooth boundary.

Bt2—15 to 25 inches; yellowish red (5YR 5/6) extremely flaggy fine sandy loam; weak fine subangular blocky structure; friable; few very fine roots; few distinct reddish brown (5YR 5/4) clay films on faces of peds; few medium irregular extremely weakly cemented iron-manganese accumulations throughout; about 35 percent flagstones and 30 percent channers; very strongly acid; gradual smooth boundary.

Bt3—25 to 30 inches; strong brown (7.5YR 5/6) extremely flaggy loam; weak fine subangular blocky structure; friable; few very fine roots; common distinct reddish brown (5YR 5/4) clay films on faces of peds; about 40 percent flagstones and 25 percent channers; very strongly acid; gradual smooth boundary.

Bt4—30 to 50 inches; strong brown (7.5YR 5/6) extremely flaggy sandy clay loam; weak fine subangular blocky structure; friable; few very fine roots; common prominent reddish brown (5YR 5/4) clay films on faces of peds; about 35 percent flagstones and 25 percent channers; very strongly acid; gradual smooth boundary.

BCt—50 to 60 inches; strong brown (7.5YR 5/6) very flaggy sandy clay loam; weak medium subangular blocky structure; friable; few distinct reddish brown (5YR 5/4) clay films on faces of peds; about 35 percent flagstones and 15 percent channers; very strongly acid; gradual smooth boundary.

R—60 inches; unweathered bedrock.

Range in Characteristics

Depth to the base of soil development: 36 to 54 inches
Depth to hard bedrock: 40 to 80 inches
Type of rock fragments: Mainly channers or flagstones from sandstone

A or Ap horizon:
Hue—7.5YR or 10YR
Value—2 or 3 (4 or 5 dry)
Chroma—1 or 2

Texture—channery or flaggy analogues of silt loam, loam, sandy loam, fine sandy loam, or sandy clay loam
Rock fragments—15 to 34 percent

E horizon (if it occurs):
Hue—7.5YR or 10YR
Value—5 or 6 (6 to 8 dry)
Chroma—2 to 4
Texture—channery, flaggy, very channery, or very flaggy analogues of silt loam, loam, sandy loam, fine sandy loam, or sandy clay loam
Rock fragments—15 to 50 percent

BE and Bt horizons:
Hue—5YR, 7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—channery, very channery, flaggy, very flaggy, extremely channery, or extremely flaggy analogues of silt loam, loam, sandy loam, fine sandy loam, or sandy clay loam
Rock fragments—15 to 80 percent

BCt or C horizon (if it occurs):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—extremely channery, very flaggy, or extremely flaggy analogues of loam, sandy loam, or sandy clay loam
Rock fragments—5 to 80 percent in the BCt horizon and ranging to 90 percent in the C horizon

Petrolia Series

Taxonomic classification: Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Petrolia silty clay loam; in a nearly level cultivated field at an elevation of about 412 feet above mean sea level, approximately 3 miles south of Bartelso, about 400 feet south and 800 feet west of the center of sec. 29, T. 1 N., R. 3 W.; in Clinton County, Illinois; USGS Addieville, IL topographic quadrangle; lat. 38 degrees 29 minutes 56 seconds N. and long. 89 degrees 27 minutes 28 seconds W.; UTM Zone 16, Easting 285659, Northing 4263792, NAD 83:

Ap—0 to 8 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; moderate fine granular structure; friable; common very fine roots; few fine spherical black (N 2.5/0) and strong brown (7.5YR 4/6) extremely weakly cemented iron-manganese accumulations throughout; about 34 percent clay; neutral; abrupt smooth boundary.
Bg—8 to 15 inches; dark gray (2.5Y 4/1) silty clay loam; weak medium subangular blocky structure; friable; few very fine roots; few faint dark gray (2.5Y 4/1) pressure faces on faces of peds; common fine prominent dark yellowish brown (10YR 4/4) and common fine faint dark grayish brown (2.5Y 4/2) masses of oxidized iron and manganese in the matrix; few fine spherical black (N 2.5/0) and strong brown (7.5YR 4/6) extremely weakly cemented iron-manganese accumulations throughout; about 32 percent clay; slightly acid; clear smooth boundary.
Btg1—15 to 26 inches; gray (2.5Y 5/1) silty clay loam; weak fine prismatic structure

parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark gray (2.5Y 4/1) clay films on faces of peds; common fine and medium prominent dark yellowish brown (10YR 4/4) masses of oxidized iron and manganese in the matrix; few fine and medium spherical black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and few fine irregular strong brown (7.5YR 5/6) extremely weakly cemented iron-manganese accumulations throughout; about 33 percent clay; slightly acid; clear smooth boundary.

Btg2—26 to 42 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) clay films on faces of peds; common fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine and medium spherical black (N 2.5/0) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries and common fine irregular strong brown (7.5YR 5/6) extremely weakly cemented iron-manganese accumulations throughout; about 34 percent clay; slightly acid; gradual smooth boundary.

Btg3—42 to 55 inches; gray (2.5Y 5/1) silty clay loam; weak medium prismatic structure; firm; few very fine roots; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; common medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few medium spherical black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) extremely weakly cemented iron-manganese accumulations throughout; about 35 percent clay; slightly acid; gradual smooth boundary.

Cg1—55 to 73 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; few very fine roots in old channels; few distinct dark gray (2.5Y 4/1) clay films lining root channels and pores; many fine and medium prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few medium spherical black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and common fine and medium irregular strong brown (7.5YR 4/6) extremely weakly cemented iron-manganese accumulations throughout; about 33 percent clay; neutral; diffuse smooth boundary.

Cg2—73 to 80 inches; gray (2.5Y 6/1) silty clay loam; massive; firm; common medium and coarse prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; few fine irregular black (7.5YR 2.5/1) iron-manganese nodules with clear strong brown (7.5YR 5/6) boundaries and few fine and medium irregular strong brown (7.5YR 4/6) extremely weakly cemented iron-manganese accumulations throughout; dark gray (2.5Y 4/1) krotovinas; about 36 percent clay; neutral.

Range in Characteristics

Depth to the base of the cambic horizon: 30 to 80 inches

Particle-size control section: Average of 27 to 35 percent clay and less than 20 percent fine sand or coarser material

Ap or A horizon:
Hue—10YR or 2.5Y
Value—typically 4 to 6; 3 in some uncultivated areas
Chroma—1 or 2
Texture—silty clay loam
Reaction—moderately acid to slightly alkaline

Bg or Btg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2

Texture—silty clay loam
Reaction—moderately acid to neutral

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—dominantly silty clay loam; silt loam in some pedons; strata of silty clay, silt loam, loam, or fine sandy loam occur in other pedons
Reaction—strongly acid to slightly alkaline

Piopolis Series

Taxonomic classification: Fine-silty, mixed, active, acid, mesic Fluvaquentic Endoaquepts

Typical Pedon

Piopolis silty clay loam; on a nearly level flood plain in a cultivated field at an elevation of about 384 feet above mean sea level, about 1,340 feet south and 1,300 feet west of the center of sec. 26, T. 3 S., R. 6 E.; in Hamilton County, Illinois; USGS Belle Prairie City, IL topographic quadrangle; lat. 38 degrees 13 minutes 47 seconds N. and long. 88 degrees 30 minutes 55 seconds W.; UTM Zone 16, Easting 367380, Northing 4232385, NAD 83:

Ap—0 to 7 inches; grayish brown (10YR 5/2) silty clay loam, light grayish brown (10YR 6/2) dry; weak medium granular structure; friable; slightly acid; abrupt smooth boundary.

Bg1—7 to 14 inches; light brownish gray (10YR 6/2) silty clay loam; weak coarse subangular blocky structure; firm; common medium prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; common medium faint gray (10YR 6/1) iron depletions in the matrix; strongly acid; gradual smooth boundary.

Bg2—14 to 23 inches; gray (10YR 6/1) silty clay loam; weak coarse subangular blocky structure; firm; many medium prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; few medium prominent black (10YR 2/1) iron-manganese concretions; strongly acid; gradual smooth boundary.

Bg3—23 to 37 inches; gray (10YR 6/1) silty clay loam; weak coarse subangular blocky structure; firm; many medium prominent strong brown (7.5YR 5/6) and common medium distinct yellowish brown (10YR 5/4) masses of oxidized iron in the matrix; common medium prominent black (10YR 2/1) iron-manganese concretions; strongly acid; gradual smooth boundary.

Cg—37 to 80 inches; gray (10YR 6/1) silty clay loam; massive; firm; few coarse prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; strongly acid.

Range in Characteristics

Depth to the base of the cambic horizon: 20 to 60 inches
Particle-size control section: Average of 27 to 35 percent clay and less than 15 percent fine sand or coarser material
Other characteristics: An irregular decrease in organic carbon content as depth increases

Ap or A horizon:
Hue—10YR, 2.5Y, or 5Y
Value—typically 4 to 6; 3 in some uncultivated areas

Chroma—1 to 3
Texture—commonly silty clay loam; less commonly silt loam

Bg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—silty clay loam

Cg horizon:
Hue—10YR, 2.5Y, 5Y, or neutral
Value—4 to 6
Chroma—0 to 2
Texture—dominantly silty clay loam or silt loam; thin strata of fine sandy loam, loam, or silty clay occur in some pedons

Robbs Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudalfs

Typical Pedon

Robbs silt loam in a nearly level cultivated field at an elevation of about 560 feet above mean sea level; 915 feet west and 1,350 feet south of the northeast corner of sec. 36, T. 12 S., R. 3 E.; in Johnson County, Illinois; USGS Bloomfield, IL topographic quadrangle; lat. 37 degrees 26 minutes 05 seconds N. and long. 88 degrees 49 minutes 24 seconds W.; UTM Zone 16, Easting 338697, Northing 4144666, NAD 83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam; weak medium granular structure; friable; common fine prominent black (2.5Y 2.5/1) iron-manganese concretions throughout; moderately acid; abrupt smooth boundary.

E—8 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak medium platy structure parting to weak medium granular; friable; common fine prominent black (2.5Y 2.5/1) iron-manganese concretions throughout; very strongly acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; weak medium subangular blocky structure; firm; few faint dark yellowish brown (10YR 4/4) clay films on faces of peds; common medium distinct grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) iron depletions; common medium distinct brownish yellow (10YR 6/6) masses of oxidized iron; few fine prominent black (2.5Y 2.5/1) iron-manganese concretions throughout; very strongly acid; abrupt smooth boundary.

Bt2—21 to 26 inches; variegated light brownish gray (10YR 6/2), yellowish brown (10YR 5/4), and brownish yellow (10YR 6/6) silty clay loam; moderate medium prismatic structure parting to moderate medium angular blocky; firm; few distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many distinct light gray (10YR 7/2) silt coats on faces of peds; very strongly acid; abrupt wavy boundary.

Btx1—26 to 43 inches; variegated light yellowish brown (10YR 6/4), grayish brown (10YR 5/2), and light brownish gray (10YR 6/2) silty clay loam; moderate very coarse prismatic structure parting to moderate medium angular blocky; firm; few distinct grayish brown (10YR 5/2) clay films on vertical faces of peds; few distinct light gray (10YR 7/2) silt coats on vertical faces of peds; many fine prominent black (2.5Y 2.5/1) iron-manganese concretions and reddish brown (5YR 4/4)

masses of oxidized iron throughout; brittle; very strongly acid; clear smooth boundary.

Btx2—43 to 49 inches; variegated light yellowish brown (10YR 6/4), grayish brown (10YR 5/2), and brown (10YR 5/3) silty clay loam; moderate very coarse prismatic structure parting to weak medium angular blocky; firm; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few distinct light gray (10YR 7/2) silt coats on vertical faces of peds; common fine prominent black (2.5Y 2.5/1) iron and manganese concretions and reddish brown (5YR 4/4) masses of oxidized iron throughout; brittle; strongly acid; gradual smooth boundary.

2Btx3—49 to 60 inches; yellowish brown (10YR 5/6) silt loam; moderate very coarse prismatic structure; firm; few distinct dark grayish brown (10YR 4/2) clay films on vertical faces of peds; few prominent light gray (10YR 7/2) silt coats on vertical faces of peds; many prominent light brownish gray (10YR 6/2) iron depletions; brittle; strongly acid.

Range in Characteristics

Depth to the top of the fragipan: 20 to 40 inches

Thickness of the solum: Typically more than 80 inches

Reaction: Moderately acid to very strongly acid in the upper part of the profile and very strongly acid or strongly acid in the lower part; in limed areas the Ap and E horizons range from moderately acid to neutral

Particle-size control section: Sand content is less than 10 percent and rock fragment content is less than 1 percent

A or Ap horizon:

Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam
Other characteristics—in some undisturbed pedons, the horizon has value of 3 and chroma of 1 or 2 but it is less than 6 inches thick

E horizon:

Hue—10YR
Value—4 or 5
Chroma—2 to 4
Texture—silt loam

Bt horizon:

Hue—10YR
Value—5 or 6
Chroma—2 to 6
Texture—silty clay loam

Btx or 2Btx horizon:

Hue—10YR
Value—5 or 6
Chroma—2 to 4
Texture—silty clay loam or silt loam
Structure—very coarse prismatic

C horizon (if it occurs):

Hue—10YR
Value—5 or 6
Chroma—2 to 6
Texture—silt loam

Sciotoville Series

Taxonomic classification: Fine-silty, mixed, active, mesic Aquic Fragiudalfs

Typical Pedon

Sciotoville silt loam; in a nearly level cultivated field at an elevation of about 342 feet above mean sea level, approximately 180 feet south of a railroad track and 120 feet east of an old lane in the SE1/4 NW1/4 NE1/4 NW1/4 of sec. 8, T. 16 S., R. 5 E.; in Massac County, Illinois; USGS Metropolis, IL topographic quadrangle; lat. 37 degrees 08 minutes 38 seconds N. and long. 88 degrees 41 minutes 16 seconds W.; UTM Zone 16, Easting 354620, Northing 4132245, NAD 83:

Ap—0 to 8 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine very dark grayish brown (10YR 3/2) iron-manganese concretions; strongly acid; abrupt smooth boundary.

BE—8 to 14 inches; yellowish brown (10YR 5/6) silt loam; weak fine subangular blocky structure; friable; common very fine black (N 2.5/0) and very dark grayish brown (10YR 3/2) iron-manganese concretions; very dark grayish brown (10YR 3/2) films in root channels; very strongly acid; clear smooth boundary.

Bt—14 to 24 inches; dark yellowish brown (10YR 4/4) silt loam; few fine faint pale brown (10YR 6/3) mottles; weak medium subangular blocky structure; friable; few faint yellowish brown (10YR 5/4) clay films on faces of peds; common fine black (N 2.5/0) and very dark grayish brown (10YR 3/2) iron-manganese concretions; very strongly acid; clear smooth boundary.

Btx1—24 to 32 inches; brown (7.5YR 4/4) silt loam; moderate coarse prismatic structure; very firm; few prominent light brownish gray (10YR 6/2) silt coatings and few distinct yellowish brown (10YR 5/4) clay films on faces of peds; few fine prominent gray (10YR 6/1) iron depletions; few fine distinct yellowish brown (10YR 5/6) masses of oxidized iron; few very fine very dark grayish brown (10YR 3/2) iron-manganese concretions; brittle; very strongly acid; gradual smooth boundary.

Btx2—32 to 42 inches; brown (7.5YR 4/4) silt loam; moderate very coarse prismatic structure; very firm; common prominent light gray (10YR 7/2) silt coatings and few prominent light brownish gray (10YR 6/2) clay films on faces of peds; common fine distinct light gray (10YR 7/2) iron depletions; common very fine black (N 2.5/0) and very dark grayish brown (10YR 3/2) iron-manganese concretions; brittle; very strongly acid; gradual smooth boundary.

BCt—42 to 52 inches; brown (7.5YR 4/4) clay loam; weak medium prismatic structure; firm; few prominent grayish brown (10YR 5/2) clay films on faces of peds; common medium distinct light brownish gray (10YR 6/2) iron depletions; common very fine black (N 2.5/0) and very dark grayish brown (10YR 3/2) iron-manganese concretions; very strongly acid; gradual smooth boundary.

C—52 to 80 inches; dark yellowish brown (10YR 4/4) silty clay loam; massive; firm; common fine distinct light brownish gray (10YR 6/2) iron depletions; common very fine black (N 2.5/0) and very dark grayish brown (10YR 3/2) iron-manganese concretions; strongly acid.

Range in Characteristics

Depth to the fragic soil properties: 18 to 38 inches
Thickness of the solum: 45 to 80 inches
Rock fragment content (mainly water-worn fine sandstone or quartzite): 0 to 2 percent, by volume, in the Ap, A, or E horizons, 0 to 5 percent in the Bt and Btx horizons, and 0 to 15 percent in the C horizon

Ap or A horizon:
Hue—10YR or 7.5YR

Value—4 or 5
Chroma—2 or 3
Texture—silt loam
Reaction—slightly acid to strongly acid
Other characteristics—some pedons have an E horizon

BE horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam or loam
Reaction—strongly acid or very strongly acid

Bt horizon:
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam, or loam with a high percentage of very fine sand
Reaction—strongly acid or very strongly acid

Btx horizon:
Hue—10YR, 7.5YR, or 5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam, silty clay loam, or loam
Reaction—strongly acid or very strongly acid in the upper part and moderately acid to very strongly acid in the lower part

BCt horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam, clay loam, or loam
Reaction—moderately acid to very strongly acid

C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—horizon is stratified or has dominant textures of loam, silt loam, silty clay loam, or sandy loam and has thin lenses of loamy sand in some pedons
Reaction—slightly acid to strongly acid

The Sciotoville soils in this survey area are considered a taxadjunct to the series because they do not have the coarseness of structure and degree of brittleness in the fragic layer that are defined for the series. Also, they have a slightly higher sand content in the particle-size control section. These differences, however, do not significantly affect the use and management of the soils. The taxadjunct classifies as fine-loamy, mixed, active, mesic Fragiaquic Hapludalfs.

Sharon Series

Taxonomic classification: Coarse-silty, mixed, active, acid, mesic Oxyaquic Udifluvents

Typical Pedon

Sharon silt loam; on a frequently flooded flood plain in a cultivated field at an elevation

of about 424 feet above mean sea level, approximately 1,800 feet west and 140 feet south of the northeast corner of sec. 25, T. 7 S., R. 4 E.; in Franklin County, Illinois; USGS Akin, IL topographic quadrangle; lat. 37 degrees 53 minutes 32 seconds N. and long. 88 degrees 42 minutes 45 seconds W.; UTM Zone 16, Easting 349425, Northing 4195221, NAD 83:

Ap—0 to 3 inches; 60 percent brown (10YR 4/3) and 40 percent dark brown (10YR 3/3) silt loam, light brownish gray (10YR 6/2) dry; strong fine and medium granular structure; friable; common fine and medium roots throughout; slightly acid; abrupt smooth boundary.

A1—3 to 9 inches; 60 percent brown (10YR 4/3) and 40 percent dark brown (10YR 3/3) silt loam, light brownish gray (10YR 6/2) dry; strong medium granular structure; friable; common fine and medium roots throughout; strongly acid; abrupt smooth boundary.

A2—9 to 13 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; strong fine granular structure; friable; common fine and medium roots throughout; strongly acid; clear smooth boundary.

CA—13 to 17 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent brown (10YR 4/3) silt loam; massive; friable; few fine roots throughout; strongly acid; clear smooth boundary.

C1—17 to 23 inches; yellowish brown (10YR 5/6) silt loam; weak medium subangular blocky structure; friable; few fine roots throughout; very strongly acid; clear smooth boundary.

C2—23 to 29 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; strongly acid; clear smooth boundary.

C3—29 to 40 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; very few faint brown (10YR 4/3) organic coats in root channels and pores; common fine distinct grayish brown (10YR 5/2) iron depletions; few fine spherical extremely weakly cemented iron-manganese accumulations; strongly acid; clear smooth boundary.

C4—40 to 80 inches; yellowish brown (10YR 5/4) silt loam; massive; friable; few faint very dark grayish brown (10YR 3/2) organic coats in root channels and pores; common fine distinct grayish brown (10YR 5/2) iron depletions; few fine spherical extremely weakly cemented iron-manganese accumulations; moderately acid.

Range in Characteristics

Particle-size control section: Average of less than 18 percent clay and less than 15 percent fine or coarser sand

Reaction: Strongly acid or very strongly acid from below the surface layer to a depth of 40 inches and very strongly acid to neutral below a depth of 40 inches

Other characteristics: Some pedons contain a buried A horizon below a depth of 40 inches

Ap and A horizons:

Hue—10YR
Value—4 or 5; 2 or 3 in some uncultivated areas
Chroma—3 or 4; 2 in some uncultivated areas
Texture—silt loam

CA or Bw horizon (if it occurs):

Hue—10YR
Value—4 or 5
Chroma—3 to 6
Texture—silt loam

C horizon:
Hue—10YR, 7.5YR, or 2.5Y
Value—4 to 7
Chroma—2 to 6
Texture—dominantly silt loam; stratified loam, sandy loam, loamy sand, or sand in some pedons

Stoy Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Fragiaquic Hapludalfs

Typical Pedon

Stoy silt loam; in a nearly level cultivated field at an elevation of about 389 feet above mean sea level, approximately 2 miles southwest of Omaha, about 1,320 feet east of the southwest corner of sec. 28, T. 7 S., R. 8 E.; in Gallatin County, Illinois; USGS Norris City, IL topographic quadrangle; lat. 37 degrees 52 minutes 45 seconds N. and long. 88 degrees 19 minutes 58 seconds W.; UTM Zone 16, Easting 382795, Northing 4193237, NAD 83:

Ap—0 to 6 inches; brown (10YR 4/3) silt loam; weak fine granular structure; friable; many roots; few fine iron-manganese concretions throughout; very strongly acid; abrupt smooth boundary.

E1—6 to 9 inches; mixed light yellowish brown (10YR 6/4) and yellowish brown (10YR 5/4) silt loam; weak thin platy structure parting to weak fine granular; friable; common roots; common very dark grayish brown (10YR 3/2) organic stains; few medium distinct light brownish gray (10YR 6/2) iron depletions in the matrix; many fine iron-manganese concretions throughout; very strongly acid; clear smooth boundary.

E2—9 to 13 inches; yellowish brown (10YR 5/4) silt loam; weak fine and medium granular structure; friable; common roots; common medium distinct light brownish gray (10YR 6/2) iron depletions and yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; many fine iron-manganese concretions throughout; very strongly acid; clear smooth boundary.

BE—13 to 16 inches; yellowish brown (10YR 5/6) silty clay loam; weak fine and medium subangular blocky structure; friable; common roots; few medium prominent light brownish gray (10YR 6/2) iron depletions in the matrix; many fine iron-manganese concretions throughout; very strongly acid; clear smooth boundary.

Bt1—16 to 24 inches; yellowish brown (10YR 5/8) silty clay loam; moderate fine subangular blocky structure; firm; common roots; common prominent brown (10YR 4/3) clay films on faces of peds; common prominent light brownish gray (10YR 6/2) clay depletions on faces of peds, light gray (10YR 7/1) dry; few fine prominent light brownish gray (10YR 6/2) and brown (10YR 5/3) iron depletions in the matrix; many fine iron-manganese concretions throughout; very strongly acid; clear smooth boundary.

Bt2—24 to 27 inches; yellowish brown (10YR 5/8 and 5/4) silty clay loam; moderate coarse subangular blocky structure parting to moderate fine and very fine angular blocky; firm; common roots; many prominent light brownish gray (10YR 6/2) clay depletions on faces of larger peds and many distinct brown (10YR 4/3) clay films on faces of smaller angular peds; few fine prominent light gray (10YR 7/1) iron depletions in the matrix; many medium iron-manganese concretions throughout; many black (10YR 2/1) threadlike manganese coatings and spherical manganese masses; very strongly acid; clear smooth boundary.

Bt3—27 to 32 inches; yellowish brown (10YR 5/8 and 5/4) silty clay loam; moderate

medium subangular blocky structure; very firm; common roots; many distinct brown (10YR 4/3) clay films on faces of peds; few fine prominent light gray (10YR 7/1) and light brownish gray (10YR 6/2) iron depletions in the matrix; many fine iron-manganese concretions throughout; common black (10YR 2/1) threadlike manganese coatings and spherical manganese masses; very strongly acid; gradual smooth boundary.

Btx1—32 to 36 inches; mottled grayish brown (10YR 5/2), brown (10YR 5/3), and yellowish brown (10YR 5/8) silty clay loam; weak coarse subangular blocky structure; firm; common roots; common distinct brown (10YR 4/3) clay films on faces of peds; few fine distinct light gray (10YR 7/1) iron depletions in the matrix; many fine iron-manganese concretions throughout; brittle; very strongly acid; gradual smooth boundary.

Btx2—36 to 45 inches; mottled grayish brown (10YR 5/2), brown (10YR 5/3), and yellowish brown (10YR 5/8) silty clay loam; weak coarse prismatic structure; extremely firm; few roots; few distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium distinct light gray (10YR 7/1) iron depletions in the matrix; many fine iron-manganese concretions throughout; brittle; very strongly acid; gradual smooth boundary.

Bx—45 to 80 inches; mottled grayish brown (10YR 5/2), pale brown (10YR 6/3), yellowish brown (10YR 5/8), and light gray (10YR 7/1) silt loam; weak medium prismatic structure; extremely firm; few very dark grayish brown (10YR 3/2) threadlike manganese coatings and spherical manganese masses; many fine iron-manganese concretions throughout; brittle; very strongly acid.

Range in Characteristics

Depth to the fragic soil properties: 25 to about 45 inches
Depth to the base of the argillic horizon: 35 to 65 inches
Particle-size control section: Average of 27 to 35 percent clay
Series control section: Less than 10 percent fine sand or coarser material throughout the soil profile

Ap horizon:
Hue—10YR
Value—4 or 5
Chroma—2 or 3
Texture—silt loam

A horizon (in undisturbed areas):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—commonly silt loam; less commonly silty clay loam

E, BE, and B/E horizons:
Hue—10YR
Value—5 or 6
Chroma—3 or 4
Texture—commonly silt loam; silty clay loam in some BE horizons

Bt horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—2 to 8
Texture—silty clay loam or silt loam

Btx and Bx horizons:
Hue—10YR

Value—5 to 7
Chroma—2 to 8
Texture—silty clay loam or silt loam
Clay content—24 to 35 percent

C horizon (if it occurs):
Hue—10YR
Value—5 to 7
Chroma—1 to 8
Texture—silt loam
Clay content—20 to 27 percent

Wakeland Series

Taxonomic classification: Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents

Typical Pedon

Wakeland silt loam; on a nearly level flood plain in a cultivated field at an elevation of about 485 feet above mean sea level, approximately 2 miles northeast of Highland, about 1,600 feet north and 1,330 feet east of the center of sec. 34, T. 4 N., R. 5 W.; in Madison County, Illinois; USGS Grantfork, IL topographic quadrangle; lat. 38 degrees 45 minutes 18 seconds N. and long. 89 degrees 38 minutes 27 seconds W.; UTM Zone 16, Easting 270517, Northing 4292906, NAD 83:

Ap—0 to 8 inches; dark grayish brown (10YR 4/2) silt loam, light brownish gray (10YR 6/2) dry; very thin lenses of light gray (10YR 7/1) silt and very fine sand; weak fine granular structure; friable; many very fine and few fine roots; few fine continuous tubular pores; neutral; clear smooth boundary.
Cg1—8 to 34 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; thin lenses of light brownish gray (10YR 6/2) silt and very fine sand; few very fine roots; common very fine and fine continuous tubular pores; few fine prominent yellowish brown (10YR 5/8) masses of oxidized iron in the matrix; neutral; gradual smooth boundary.
Cg2—34 to 44 inches; dark grayish brown (10YR 4/2) silt loam; massive; friable; few very fine roots; few very fine continuous tubular pores; common medium faint light brownish gray (10YR 6/2) iron depletions and common medium prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; neutral; clear smooth boundary.
Cg3—44 to 68 inches; grayish brown (10YR 5/2) silt loam; massive; friable; common medium faint dark grayish brown (10YR 4/2) and light brownish gray (10YR 6/2) iron depletions and common fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; few medium spherical dark brown (7.5YR 3/2) iron-manganese nodules; slightly acid; clear smooth boundary.
Ab—68 to 80 inches; very dark grayish brown (10YR 3/2) silt loam; moderate fine subangular blocky structure; friable; few fine spherical black (10YR 2/1) iron-manganese nodules; slightly acid.

Range in Characteristics

Particle-size control section: Average of 10 to 18 percent clay and less than 15 percent fine sand or coarser material
Depth to a buried soil (if it occurs): More than 60 inches

Ap horizon:
Hue—10YR

Value—4 or 5
Chroma—2 to 4
Texture—silt loam

A horizon (if it occurs):
Hue—10YR
Value—3 or 4
Chroma—1
Texture—silt loam
Thickness—1 to 3 inches

C or Cg horizon (upper part):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

C or Cg horizon (lower part):
Hue—10YR or 2.5Y
Value—4 to 7
Chroma—1 to 6
Texture—silt loam; loam and thin strata of fine sandy loam or sandy loam below a depth of 40 inches

Ab horizon (if it occurs):
Hue—10YR
Value—2 or 3
Chroma—1 or 2
Texture—silt loam

Weikert Series

Taxonomic classification: Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts

Typical Pedon

Weikert channery silt loam; on a southwest-facing complex slope of 35 percent in a wooded area at an elevation of about 600 feet above mean sea level, in the Odum tract, Community Characterization Abstract, plot 81A, sandstone barrens located in the SE1/4 NW1/4 of sec. 9, T. 12 S., R. 3 E.; in Johnson County, Illinois; USGS Vienna, IL topographic quadrangle; lat. 37 degrees 29 minutes 28 seconds N. and long. 88 degrees 53 minutes 10 seconds W.; UTM Zone 16, Easting 333262, Northing 4151014, NAD 83:

Oi—0 to 1 inch; partially decomposed leaf litter; many very fine roots throughout; abrupt smooth boundary.
A—1 to 2 inches; dark brown (10YR 3/3) channery silt loam; strong very fine granular structure; friable; common very fine roots throughout; 12 percent clay; 20 percent rock fragments; very strongly acid; abrupt smooth boundary.
E—2 to 5 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; common very fine roots throughout; 15 percent clay; 10 percent rock fragments; extremely acid; abrupt smooth boundary.
Bw—5 to 13 inches; strong brown (7.5YR 5/6) very flaggy silt loam; moderate fine and medium subangular blocky structure; friable; common very fine roots throughout; 15 percent clay; 60 percent rock fragments; extremely acid; abrupt smooth boundary.
R—13 inches; Pennsylvanian-age sandstone.

Range in Characteristics

Thickness of the solum: 8 to 20 inches
Depth to bedrock: 10 to 20 inches
Reaction: Moderately acid to very strongly acid in the A horizon and moderately acid to extremely acid in the E, Bw, and C horizons

O horizon (if it occurs):
Texture—slightly or partially decomposed organic materials

A and E horizons:
Hue—7.5YR or 10YR
Value—3 to 5
Chroma—2 to 4
Fine-earth texture—silt loam
Rock fragments—5 to 50 percent

Bw horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Fine-earth texture—silt loam or loam
Rock fragments—35 to 60 percent

C or Cr horizon (if it occurs):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—3 to 8
Fine-earth texture—silt loam or loam
Rock fragments—60 to 85 percent

R horizon:
Bedrock—shale, siltstone, and sandstone

Wellston Series

Taxonomic classification: Fine-silty, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Wellston silt loam; on a shoulder slope in mixed hardwoods at an elevation of about 485 feet above mean sea level, approximately 4.5 miles southeast of Chester, about 1,835 feet west and 785 feet north of the center of sec. 26, T. 7 S., R. 6 W.; in Randolph County, Illinois; USGS Welge, IL topographic quadrangle; lat. 37 degrees 53 minutes 38 seconds N. and long. 89 degrees 44 minutes 25 seconds W.; UTM Zone 16, Easting 259030, Northing 4197589, NAD 83:

A—0 to 3 inches; dark brown (10YR 3/3) silt loam, brown (10YR 5/3) dry; moderate medium granular structure; friable; about 5 percent sandstone channers; slightly acid; abrupt smooth boundary.
E—3 to 8 inches; yellowish brown (10YR 5/4) silt loam, very pale brown (10YR 7/4) dry; weak medium platy structure; friable; about 3 percent sandstone channers; moderately acid; clear smooth boundary.
Bt1—8 to 17 inches; strong brown (7.5YR 5/6) silt loam; moderate fine and medium subangular blocky structure; friable; many distinct brown (7.5YR 4/4) clay films on faces of peds; about 3 percent sandstone channers; strongly acid; clear smooth boundary.
Bt2—17 to 31 inches; strong brown (7.5YR 5/6) silt loam; moderate and strong medium subangular blocky structure; firm; common distinct brown (7.5YR 4/4) clay

films and many distinct pinkish gray (7.5YR 6/2) silt coats on faces of peds; about 5 percent sandstone channers; strongly acid; gradual smooth boundary.

Bt3—31 to 43 inches; strong brown (7.5YR 5/6) silt loam; moderate medium and coarse subangular blocky structure; hard; common distinct brown (7.5YR 4/4) clay films on faces of peds and common distinct pinkish gray (7.5YR 6/2) silt coats on vertical faces of peds; about 10 percent sandstone channers; moderately acid; gradual smooth boundary.

2BCt—43 to 49 inches; strong brown (7.5YR 5/6) channery silt loam; weak coarse subangular blocky structure; hard; few faint brown (7.5YR 4/4) clay films on faces of peds and common distinct pinkish gray (7.5YR 6/2) silt coats on vertical faces of peds; few very dark gray (N 3/0) organo-clay films lining root channels; about 20 percent sandstone channers; moderately acid; clear irregular boundary.

2C—49 to 60 inches; brown (7.5YR 5/4) very channery loam; massive; friable; about 55 percent sandstone and siltstone channers and flagstones; strongly acid; clear wavy boundary.

2R—60 inches; unweathered sandstone bedrock.

Range in Characteristics

Depth to the base of soil development: 32 to 55 inches
Depth to a lithic or paralithic contact: 40 to 72 inches
Other characteristics: Some pedons have a B/E horizon

Ap horizon:
Hue—7.5YR or 10YR
Value—4 or 5 (6 or 7 dry)
Chroma—typically 2 or 3; 4 to 6 in eroded pedons
Texture—silt loam or silty clay loam in severely eroded areas

A horizon (in uncultivated areas):
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—1 to 3
Texture—silt loam

E horizon:
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—3 or 4
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 to 8
Texture—silty clay loam or silt loam

2Bt, 2BCt, or 2BC horizon (if it occurs):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6
Texture—silt loam, silty clay loam, clay loam, or loam or their channery, very channery, gravelly, or very gravelly analogues

2C or 2Cr horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 or 5
Chroma—3 to 6

Texture—gravelly or channery to extremely gravelly or extremely channery loam, silt loam, clay loam, sandy clay loam, or sandy loam

2R horizon:

Bedrock—dominantly unweathered sandstone or siltstone; shale in some pedons

Westmore Series

Taxonomic classification: Fine-silty, mixed, active, mesic Typic Hapludalfs

Typical Pedon

Westmore silt loam; on a west-facing slope, in an area of mixed hardwoods, at an elevation of about 600 feet above mean sea level, approximately 2.5 miles northwest of Ames, about 1,300 feet south and 2,280 feet west of the northeast corner of sec. 20, T. 4 S., R. 9 W.; in Monroe County, Illinois; USGS Ames, IL topographic quadrangle; lat. 38 degrees 10 minutes 33 seconds N. and long. 90 degrees 07 minutes 01 second W.; UTM Zone 15, Easting 752538, Northing 4229254, NAD 83:

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, grayish brown (10YR 5/2) dry; moderate fine granular structure; friable; common very fine roots; slightly acid; abrupt smooth boundary.

E—2 to 6 inches; brown (10YR 5/3) silt loam, very pale brown (10YR 7/3) dry; moderate fine subangular blocky structure; friable; few very fine roots; few fine faint brown (7.5YR 4/4) masses of oxidized iron in the matrix; strongly acid; clear smooth boundary.

BE—6 to 10 inches; yellowish brown (10YR 5/4) silt loam; moderate fine subangular blocky structure; friable; few very fine roots; strongly acid; clear smooth boundary.

Bt1—10 to 16 inches; strong brown (7.5YR 5/6) silt loam; moderate fine subangular blocky structure; friable; few very fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

Bt2—16 to 22 inches; strong brown (7.5YR 5/6) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common faint brown (7.5YR 4/4) clay films on faces of peds; strongly acid; clear smooth boundary.

2Bt3—22 to 27 inches; brown (7.5YR 5/4) silty clay loam; weak medium prismatic structure parting to moderate fine subangular blocky; friable; few very fine roots; common prominent very pale brown (10YR 7/3, dry) silt coats and common faint brown (7.5YR 4/4) clay films on faces of peds; few fine rounded and irregular distinct black (7.5YR 2.5/1) iron-manganese concretions; about 5 percent fine sandstone fragments; strongly acid; clear smooth boundary.

2Bt4—27 to 32 inches; strong brown (7.5YR 4/6) silty clay; weak medium prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common prominent very pale brown (10YR 7/3, dry) silt coats and common faint brown (7.5YR 4/4) clay films on faces of peds; few fine prominent brown (7.5YR 5/2) iron depletions and few fine distinct dark red (2.5YR 3/6) masses of oxidized iron in the matrix; few medium rounded and irregular distinct black (7.5YR 2/1) iron-manganese concretions; about 5 to 10 percent fine sandstone fragments; strongly acid; abrupt smooth boundary.

2Bt5—32 to 62 inches; variegated strong brown (7.5YR 5/6) and brown (7.5YR 5/2) clay; weak medium prismatic structure; extremely firm; few very fine roots; few faint brown (7.5YR 4/4) clay films on faces of peds; common fine prominent dark red (2.5YR 3/6) masses of oxidized iron in the matrix; about 10 to 15 percent sandstone fragments; strongly acid; clear smooth boundary.

2R—62 inches; unweathered siltstone bedrock.

Range in Characteristics

Thickness of loess or other silty material: 20 to 36 inches
Depth to the base of soil development: 40 to 72 inches
Depth to a lithic or paralithic contact: 48 to 80 inches
Particle-size control section: Average of 25 to 35 percent clay and 2 to 15 percent fine sand or coarser material

Ap horizon (if it occurs):
Hue—10YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam or silty clay loam in some severely eroded areas

A horizon (in uncultivated areas):
Hue—10YR
Value—2 to 4 (4 to 6 dry)
Chroma—1 to 3
Texture—silt loam or silty clay loam in some severely eroded areas
Thickness—1 to 5 inches

E or BE horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5 (6 or 7 dry)
Chroma—2 to 4
Texture—silt loam

Bt horizon:
Hue—7.5YR or 10YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam or silty clay loam

2Bt or 2BC horizon (if it occurs):
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—2 to 6
Texture—silty clay, clay, silty clay loam, or clay loam or their channery analogues

2C horizon (if it occurs):
Hue—10YR, 2.5Y, 5Y, or neutral
Value—3 to 6
Chroma—0 to 6
Texture—commonly clay or silty clay; less commonly sandy clay, clay loam, or silty clay loam or their channery analogues

Wheeling Series

Taxonomic classification: Fine-loamy, mixed, active, mesic Ultic Hapludalfs

Typical Pedon

Wheeling silt loam; in a gently sloping wooded area at an elevation of about 341 feet above mean sea level, approximately 2,556 feet east and 2,280 feet north of the southwest corner of sec. 32, T. 14 S., R. 4 E.; in Massac County, Illinois; USGS Mermet, IL topographic quadrangle; lat. 37 degrees 15 minutes 20 seconds N. and long. 88 degrees 47 minutes 39 seconds W.; UTM Zone 16, Easting 340886, Northing 4124732, NAD 83:

Ap—0 to 5 inches; dark brown (10YR 3/3) silt loam, very dark grayish brown (10YR 3/2) crushed and brown (10YR 5/3) dry; moderate fine granular structure; friable; many roots; strongly acid; abrupt smooth boundary.
E—5 to 7 inches; yellowish brown (10YR 5/4) silt loam; weak fine granular structure; friable; many roots; moderately acid; clear smooth boundary.
BE—7 to 10 inches; yellowish brown (10YR 5/4) silt loam to loam; weak fine subangular blocky structure; friable; many roots; common very fine and fine pores; few faint brown (7.5YR 4/4) clay films in root and worm channels; strongly acid; clear smooth boundary.
Bt1—10 to 23 inches; brown (7.5YR 4/4) clay loam; strong fine and medium prismatic structure parting to strong fine and medium angular blocky; friable; common roots; common faint brown (7.5YR 4/4) clay films on faces of peds; few very fine black (N 2.5/0) manganese coatings on faces of peds; strongly acid; clear smooth boundary.
Bt2—23 to 30 inches; brown (7.5YR 4/4) clay loam; moderate medium prismatic structure parting to moderate fine and medium subangular blocky; friable; common roots; few very fine pores; many faint brown (7.5YR 4/4) clay films on faces of peds; few very fine black (N 2.5/0) manganese coatings on faces of peds; strongly acid; clear smooth boundary.
Bt3—30 to 38 inches; brown (7.5YR 4/4) sandy clay loam; weak medium prismatic structure parting to moderate medium subangular blocky; friable; few roots; few very fine pores; common faint brown (7.5YR 4/4) clay films on faces of peds; few very fine black (N 2.5/0) masses of oxidized iron and manganese, 1 to 2 inches in diameter; strongly acid; clear smooth boundary.
BCt—38 to 49 inches; brown (7.5YR 4/4) sandy clay loam; weak medium prismatic structure parting to weak medium subangular blocky; friable; few roots; few very fine pores; few faint brown (7.5YR 4/4) clay films on faces of peds; few fine distinct light yellowish brown (10YR 6/4) masses of oxidized iron; very strongly acid; clear smooth boundary.
C—49 to 80 inches; brown (7.5YR 4/4) sandy loam; massive; friable; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to 60 inches or more
Content of rock fragments: 0 to 35 percent
Particle-size control section: Average of 18 to 30 percent clay
Reaction: Very strongly acid to moderately acid throughout the profile in unlimed areas
Other characteristics: Some areas have noticeable mica flakes throughout the soil profile

Ap or A horizon:
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—2 to 4
Texture—fine sandy loam, sandy loam, loam, or silt loam

E horizon:
Hue—10YR or 7.5YR
Value—5 or 6
Chroma—2 to 4
Texture—fine sandy loam, sandy loam, loam, or silt loam

BE horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6

Texture—commonly loam or silt loam; less commonly fine sandy loam or sandy loam

Bt horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—loam, silt loam, clay loam, silty clay loam, or sandy clay loam

BCt horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—very fine sandy loam, sandy loam, or sandy clay loam

C horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—horizon is stratified in textures of sandy loam, fine sandy loam, loamy sand, or loamy fine sand

Winfield Series

Taxonomic classification: Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs

Typical Pedon

Winfield silt loam; on a south-facing slope, in a cultivated field, at an elevation of about 540 feet above mean sea level, about 205 feet east and 610 feet south of the northwest corner of sec. 9, T. 2 N., R. 7 W.; in St. Clair County, Illinois; USGS Collinsville, IL topographic quadrangle; lat. 38 degrees 38 minutes 32 seconds N. and long. 89 degrees 53 minutes 27 seconds W.; UTM Zone 16, Easting 248394, Northing 4280830, NAD 83:

Ap—0 to 9 inches; brown (10YR 4/3) silt loam, pale brown (10YR 6/3) dry; moderate fine granular structure; friable; many very fine roots; about 22 percent clay; neutral; abrupt smooth boundary.

E—9 to 13 inches; brown (10YR 5/3) silt loam, pale brown (10YR 6/3) dry; weak medium platy structure parting to moderate very fine subangular blocky; friable; common very fine roots; few fine faint light gray (10YR 7/2, dry) clay depletions on faces of peds; few fine rounded prominent black (10YR 2/1) iron-manganese nodules with sharp boundaries; about 25 percent clay; moderately acid; clear smooth boundary.

Bt1—13 to 21 inches; yellowish brown (10YR 5/4) silty clay loam; moderate fine subangular blocky structure; firm; common very fine roots; few distinct light gray (10YR 7/2, dry) clay depletions along root channels; many distinct brown (10YR 4/3) clay films on faces of peds; common fine and medium rounded prominent black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 33 percent clay; moderately acid; clear smooth boundary.

Bt2—21 to 30 inches; yellowish brown (10YR 5/4) silty clay loam; moderate medium subangular blocky structure; firm; common very fine roots; many distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine distinct light brownish gray (10YR 6/2) iron depletions and few fine distinct strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; few fine rounded prominent black (10YR 2/1) iron-manganese nodules with sharp strong brown (7.5YR 4/6) boundaries; about 32 percent clay; strongly acid; gradual smooth boundary.

Btg1—30 to 40 inches; light brownish gray (10YR 6/2) silty clay loam; weak fine prismatic structure parting to moderate medium subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; common fine and medium distinct yellowish brown (10YR 5/4) and few fine prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; common fine and medium irregular prominent black (10YR 2/1) extremely weakly cemented iron-manganese accumulations with clear strong brown (7.5YR 4/6) boundaries; about 30 percent clay; moderately acid; clear smooth boundary.

Btg2—40 to 56 inches; light brownish gray (10YR 6/2) silty clay loam; weak medium prismatic structure parting to weak medium and coarse subangular blocky; firm; few very fine roots; common distinct dark yellowish brown (10YR 4/4) clay films on faces of peds; many medium and coarse prominent strong brown (7.5YR 5/6) masses of oxidized iron in the matrix; common fine and medium irregular prominent black (10YR 2/1) extremely weakly cemented iron-manganese accumulations with clear strong brown (7.5YR 4/6) boundaries; about 28 percent clay; moderately acid; clear smooth boundary.

Btg3—56 to 62 inches; light brownish gray (2.5Y 6/2) silt loam; weak medium angular blocky structure; friable; few very fine roots; few faint brown (10YR 5/3) clay films on faces of peds; common fine and medium prominent strong brown (7.5YR 5/8) masses of oxidized iron in the matrix; common medium irregular black (10YR 2/1) extremely weakly cemented iron-manganese accumulations with diffuse strong brown (7.5YR 5/6) boundaries; about 25 percent clay; slightly acid; gradual smooth boundary.

Cg—62 to 80 inches; light brownish gray (2.5Y 6/2) silt loam; massive; friable; common medium and coarse prominent strong brown (7.5YR 4/6) and few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron in the matrix; common medium and coarse irregular distinct black (10YR 2/1) extremely weakly cemented iron-manganese accumulations with diffuse strong brown (7.5YR 5/6) boundaries; about 20 percent clay; neutral.

Range in Characteristics

Depth to the base of the argillic horizon: 35 to 65 inches
Thickness of loess: 80 inches or more
Particle-size control section: Average of 27 to 35 percent clay and less than 7 percent sand

Ap or A horizon:
Hue—10YR
Value—3 to 5
Chroma—2 or 3
Texture—silt loam

E horizon (if it occurs):
Hue—10YR
Value—4 to 6 (6 to 8 dry)
Chroma—2 to 4
Texture—silt loam

BE horizon (if it occurs):
Hue—7.5YR or 10YR
Value—4 or 5
Chroma—3 or 4
Texture—silt loam or silty clay loam

Bt horizon (upper part):
Hue—7.5YR or 10YR

Value—4 or 5
Chroma—3 to 6
Texture—silty clay loam

Bt horizon (lower part) and Btg horizon:
Hue—7.5YR, 10YR, or 2.5Y
Value—4 to 6
Chroma—1 to 6
Texture—silt loam or silty clay loam

C or Cg horizon:
Hue—10YR or 2.5Y
Value—4 to 6
Chroma—1 to 4
Texture—silt loam

Zanesville Series

Taxonomic classification: Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

Typical Pedon

Zanesville silt loam; on a smooth, convex ridgetop in a cultivated field at an elevation of about 571 feet above mean sea level, approximately 1/4 mile north of Needmore, along the west side of Kentucky Highway 293, about 300 feet south of Liberty Church; in Caldwell County, Kentucky; USGS Olney, KY 7.5' topographic quadrangle; lat. 37 degrees 13 minutes 34 seconds N. and long. 87 degrees 50 minutes 42 seconds W; UTM Zone 16, Easting 425044, Northing 4120291, NAD 83:

Ap—0 to 7 inches; brown (10YR 4/3) silt loam; weak fine granular structure; very friable; many fine roots; moderately acid; abrupt smooth boundary .

Bt—7 to 28 inches; strong brown (7.5YR 5/6) silt loam; moderate medium subangular blocky structure; friable; common fine roots; common faint brown (10YR 5/3) and reddish brown (5YR 5/4) clay films on faces of peds; few fine black (N 2.5/0) iron-manganese concretions; very strongly acid; clear wavy boundary.

Btx—28 to 39 inches; yellowish brown (10YR 5/4) silt loam; many medium distinct gray (10YR 6/1) and strong brown (7.5YR 5/6) mottles; moderate very coarse prismatic structure parting to weak medium subangular blocky; very firm; few fine roots between prisms; many distinct gray (10YR 6/1) silt coats and clay films on vertical faces of peds and common faint brown (10YR 5/3) and common distinct reddish brown (5YR 5/4) clay films on faces of peds; few fine black (N 2.5/0) iron-manganese concretions; brittle; very strongly acid; gradual wavy boundary.

2C—39 to 60 inches; yellowish brown (10YR 5/4) sandy clay loam; common medium distinct light brownish gray (2.5Y 6/2) and light yellowish brown (10YR 6/4) mottles; weak thick platy structure; firm; few fine black (N 2.5/0) iron-manganese concretions; 10 percent weathered brown sandstone and siltstone fragments; very strongly acid; clear wavy boundary.

2R—60 inches; gray and brown acid sandstone and siltstone.

Range in Characteristics

Depth to the fragipan: 20 to 32 inches in uneroded areas
Thickness of the solum: 35 to 70 inches
Depth to bedrock: 40 to 80 inches
Reaction: Moderately acid to very strongly acid, except in limed areas

Ap horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—2 to 4
Texture—typically silt loam; silty clay loam in some severely eroded areas

A horizon (in uncultivated areas):
Hue—10YR or 7.5YR
Value—3 to 5
Chroma—1 to 4
Texture—silt loam
Thickness—1 to 3 inches

E horizon (if it occurs):
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silt loam

Bt horizon:
Hue—10YR, 7.5YR, or 5YR
Value—4 or 5
Chroma—4 to 6
Texture—silt loam or silty clay loam

Btx or 2Btx horizon:
Hue—10YR or 7.5YR
Value—4 or 5
Chroma—3 to 6
Texture—commonly silt loam or silty clay loam; less commonly loam, clay loam, sandy clay loam, or fine sandy loam
Content of rock fragments—0 to 15 percent

2C, 3C, 2BC, or 3BC horizon:
Hue—10YR or 7.5YR
Value—4 to 6
Chroma—3 to 6
Texture—silty clay loam, silt loam, loam, clay loam, sandy clay loam, or fine sandy loam or their gravelly, channery, or very channery analogues
Content of rock fragments—5 to 50 percent

2Cr or 3Cr horizon (if it occurs):
Bedrock—interbedded sandstone, siltstone, or shale; paralithic (rippable)

2R or 3R horizon:
Bedrock—sandstone or siltstone; lithic (hard)

Formation of the Soils

This section relates the soils in the survey area to the major factors of soil formation and describes the processes of soil formation.

Factors of Soil Formation

Soil is formed by weathering and other geologic processes that act on the soil's parent material. The characteristics of the soil at any given point on the landscape depend upon parent material, climate, living organisms, relief, and time *(7)*. Climate and living organisms are the active forces of soil formation. They act on the parent material accumulated through the weathering of rocks and slowly change it into soil. All five factors come into play in the formation of every soil. The relative importance of each differs from place to place; sometimes one is more important and sometimes another. In extreme cases one factor may dominate in the formation of a soil and fix most of its properties. In general, however, it is the combined action of the five factors that determines the present character of each soil.

Parent Material

Parent material is derived mainly from the weathering of rock, but it may have been sorted and moved from place to place by glaciers, wind, and water. The soils of Johnson County formed mostly in loess, residuum, and alluvium.

In Johnson County, the soils on uplands formed mainly in loess, or windblown silt. The thickness of the loess on stable summits ranges from 5 to 7 feet in the northeastern part of the county to more than 12 feet in the southern and southwestern parts. The large Pleistocene alluvial plains, which included the Mississippi River Valley, the Ohio River Valley, and the ancient Ohio River Valley now occupied by the Cache River and Lower Bay Creek, are the main sources of the loess deposits in the county. In some places there are three layers of loess. In many places, however, the lowest layer—the Loveland loess—is lacking because the soil that developed in this material was removed by erosion before new material was deposited. Where the Loveland loess does occur in Johnson County, it overlies bedrock residuum or hard bedrock. The second layer—the Farmdale or Roxana loess—generally makes up from a third to a half of the total thickness of the loess. The uppermost layer—the Peorian loess—ordinarily is the thickest and is the material in which most of the modern soils developed. Alford, Muren, and Hosmer are examples of soils that formed mainly in loess.

In areas of thinner loess, soils formed in both loess and residuum. The loess is commonly 10 to 60 inches in thickness and overlies Pennsylvanian-age and Mississippian-age bedrock. The Pennsylvanian-age bedrock underlies the northern part of Johnson County. It consists generally of thin-bedded sandstone, siltstone, and shale. The Mississippian-age bedrock underlies the southern part of the county and consists of thick beds of sandstone and limestone and thin beds of shale. Wellston, Muskingum, and Berks soils generally occur where there is sandstone and acid shale. Beasley soils occur in a few places and formed in calcareous shale.

Alluvium is material, such as sand, silt, or clay, deposited on land by streams.

Petrolia and Karnak are examples of soils that formed in relatively young alluvium. Sciotoville, Ginat, and Wheeling are examples of soils that formed in relatively older alluvium.

Climate and Vegetation

Climate largely determines the rate of weathering, and it also influences the type of vegetation that grows on soils. The humid temperate climate of Johnson County is conducive to the relatively rapid breakdown of minerals, to the formation of clay, and to the translocation of these materials downward in the soil profile. It is also conducive to the growth of deciduous forest, which for a significant period prior to settlement covered all of the uplands and most of the terraces and flood plains. As a result, most of the soils have a relatively light-colored surface horizon. Examples of these soils are Beasley, Menfro, and Sciotoville. Darwin soils on flood plains are an example of soils that formed predominantly under herbaceous vegetation, in a wet environment. Sharon and Belknap are examples of soils that formed in alluvium that developed under forest vegetation and have a light-colored surface.

Relief

Under given climatic conditions and in uniform parent material, relief largely controls the amount of moisture in the soil. It influences the amount of runoff, the amount of infiltration, and the degree of erosion. In uniform materials, such as loess, differences in natural soil drainage generally are closely associated with slope, or relief. Examples are the well drained Menfro soils and the moderately well drained Winfield soils, which both formed in thick loess and are commonly adjacent on the landscape.

Time

The length of time necessary for a soil to develop depends on the other factors of soil formation. Soil development generally is faster in a humid climate that supports good vegetation than in a dry climate that supports little vegetation. Soils normally become more strongly developed with increased time of exposure to weathering processes. Sharon soils are an example of a weakly developed soil. Hosmer soils are an example of a strongly developed soil.

Processes of Soil Formation

Soil forms through the complex interaction of four general processes *(14)***.** These processes are additions, transformations, removals, and transfers. The degree of interaction of each these processes in soil formation varies, resulting in the variety of soils seen on the landscape.

Additions to the soil can occur directly through the deposition of sediment to the soil surface from flooding or through the accumulation of wind-blown sediment. The accumulation and incorporation of organic matter in the A horizon of mineral soils is also an addition. The most striking example of this addition is the formation of the mollic epipedon. The mollic epipedon forms in an environment that features optimum amounts of moisture, temperature, and bivalent cations. Such an environment allows grasses to thrive. The grassland vegetation produces large amounts of organic matter. Microbial decomposition of subsurface organic residues and removal of organic residues from the surface by soil fauna result in the most recognizable property of the mollic epipedon, its dark color. Darwin soils are an example of soils that have a mollic epipedon.

Transformations are changes that take place in the soil through the interaction of

biological, chemical, and physical processes. An example is the reduction of iron and manganese oxides, which occurs in soils saturated with water. Typically, iron oxides coat soil particles and produce brownish, yellowish, or reddish colors and manganese oxides produce black colors. When a soil becomes saturated with water and the dissolved oxygen is removed, anaerobic conditions develop. These conditions result in changes in the biogeochemical processes occurring in the soils and in the development of distinctive soil morphological characteristics (redoximorphic features). Reduced iron and manganese can move with the soil water to other parts of the soil or can be removed entirely from the soil by leaching. After the iron and manganese are gone, the leached area, or depletion, generally has a grayish or whitish color. If the reduced iron comes in contact with oxygen, it can re-oxidize. The result is the formation of bright-colored concentrations or accumulations. Repeated cycles of saturation and drying create a mottled soil. Part of the soil is gray because of the loss of iron, and other parts are brown because the iron oxide has accumulated or has not been removed. The somewhat poorly drained Stoy soils are an example of soils in which this process has occurred. If a soil remains saturated for long periods, iron may be leached from the soil. Such soils are generally grayish, or gleyed. The poorly drained Karnak soils are an example.

Removals from the soil can occur as solid mineral and organic particles are lost through erosion from the soil surface. This is called soil erosion. Such losses can be serious because the material lost is usually the most productive part of the soil profile. The strongly sloping Menfro and Hosmer soils are examples of soils that are highly susceptible to removals by soil erosion.

Removals can also occur within the soil, commonly as a result of leaching. The leaching of calcium carbonate from calcareous loess is an example of a removal. The loess was initially high in calcium carbonate. Water percolating through the loess dissolved and transported the calcium carbonate deeper into the solum. Calcium carbonate is relatively soluble and is removed early in the formation of the soil. It is also a powerful flocculant, creating microscopic soil particles too large to be transported in suspension in the soil water. Removal of calcium carbonate facilitates the dispersion of clay particles. Translocation of the dispersed clay particles can then occur in percolating soil water. Zanesville soils are an example of a soil that has had significant removals from leaching.

Translocations are movements from one place to another in the soil. An example is the formation of an illuvial horizon through the translocation of clay from the A or E horizon, the zone of eluviation or loss, to the B horizon, the zone of illuviation or gain. In Menfro and Hosmer soils, for example, significant clay has accumulated, forming an illuvial horizon called an argillic horizon. Argillic horizons tend to develop on stable landscapes. Fine clay was transferred from the A or E horizon by water from rain and melting snow downward through the soil to the B horizon where it was deposited on the faces of peds and along pores.

References

(1) American Association of State Highway and Transportation Officials (AASHTO). 2000. Standard specifications for transportation materials and methods of sampling and testing. 20th ed., 2 vols.

(2) American Society for Testing and Materials (ASTM). 2001. Standard classification of soils for engineering purposes. ASTM Stand. D-2487.

(3) Cowardin, L.M., and others. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildl. Serv. FWS/OBS-79/31.

(4) Federal Register. July 13, 1994. Changes in the hydric soils of the United States.

(5) Federal Register. February 24, 1995. Hydric soils of the United States.

(6) Fehrenbacher, J.B., and G.O. Walker. 1964. Soil survey of Johnson County, Illinois. Univ. of Ill., Agric. Exp. Stn. Rep. No. 82.

(7) Jenny, Hans. 1941. Factors of soil formation.

(8) Leighton, M.M., G.E. Ekblaw, and C.L. Hornberg. 1948. Physiographic divisions of Illinois. J. Geol., vol. 56, pp. 16-33.

(9) National Research Council. 1995. Wetlands: Characteristics and boundaries.

(10) Olson, K.R., and others. 2000. Average crop, pasture, and forest productivity ratings for Illinois soils. Univ. of Ill. at Urbana-Champaign, Coll. of Agric., Consumer and Environ. Sci., Office of Research Bull. 810.

(11) Olson, K.R., and others. 2000. Optimum crop productivity ratings for Illinois soils. Univ. of Ill. at Urbana-Champaign, Coll. of Agric., Consumer and Environ. Sci., Office of Research Bull. 811.

(12) Pryor, Wayne A. 1956. Groundwater geology in southern Illinois. Ill. State Geol. Surv. Circ. 212.

(13) Schmidt, T.L., M.H. Hansen, and J.A. Solomakos. 2000. Illinois' forests in 1998. St. Paul, Minn., U.S. Dep. Agric, For. Serv. North Central Research Stn., Resource Bull. NC-198.

(14) Simonson, R.W. 1959. Outline of a generalized theory of soil genesis. Soil Sci. Soc. Am. Proc. 23:152-156.

(15) Tiner, R.W., Jr. 1985. Wetlands of Delaware. Coop. Publ., U.S. Fish and Wildl. Serv. and Del. Dep. of Natural Resources and Environ. Control, Wetlands Sec.

(16) United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Exp. Stn. Tech. Rep. Y-87-1.

(17) United States Department of Agriculture, Natural Resources Conservation Service. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd ed. Soil Surv. Staff. U.S. Dep. Agric. Handb. 436.

(18) United States Department of Agriculture, Natural Resources Conservation Service. 2006. Field indicators of hydric soils in the United States. Ver. 6.0. G.W. Hurt and L.M. Vasilas (eds.). In coop. with National Tech. Committee for Hydric Soils.

(19) United States Department of Agriculture, Natural Resources Conservation Service. 2006. Keys to soil taxonomy. 10th ed. Soil Surv. Staff.

(20) United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States. Agric. Handb. 296.

(21) United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Dep. Agric. Handb. 210.

(22) United States Department of Agriculture, Soil Conservation Service. 1993. Soil survey manual. U.S. Dep. Agric. Handb. 18.

(23) United States Department of Commerce, Bureau of the Census. 2002. *Information accessed December 27, 2002, at http://quickfacts.census.gov/qfd/ .*

Glossary

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having an A and a C horizon.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali (sodic) soils. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Alpha,alpha-dipyridyl. A dye that when dissolved in 1N ammonium acetate is used to detect the presence of reduced iron (Fe II) in the soil. A positive reaction indicates a type of redoximorphic feature.

Animal unit month (AUM). The amount of forage required by one cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction in which a slope faces.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope. A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedding planes. Fine strata, less than 5 millimeters thick, in unconsolidated alluvial, eolian, lacustrine, or marine sediment.
Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.
Bisequum. Two sequences of soil horizons, each of which consists of an illuvial horizon and the overlying eluvial horizons.
Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.
Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.
Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.
Catena. A sequence, or “chain,” of soils on a landscape that formed in similar kinds of parent material but have different characteristics as a result of differences in relief and drainage.
Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.
Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.
Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.
Chemical treatment. Control of unwanted vegetation through the use of chemicals.
Chiseling. Tillage with an implement having one or more soil-penetrating points that loosen the subsoil and bring clods to the surface.
Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.
Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.
Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.
Climax plant community. The plant community on a given site that will be established if present environmental conditions continue to prevail and the site is properly managed.
Coarse textured soil. Sand or loamy sand.
Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
Cobbly soil material. Material that is 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material is 35 to 60 percent of these rock fragments, and extremely cobbly soil material is more than 60 percent.
COLE (coefficient of linear extensibility). See Linear extensibility.
Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
Complex soil. A map unit of two or more kinds of soil or miscellaneous areas in such

an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. Grains, pellets, or nodules of various sizes, shapes, and colors consisting of concentrated compounds or cemented soil grains. The composition of most concretions is unlike that of the surrounding soil. Calcium carbonate and iron oxide are common compounds in concretions.

Conservation cropping system. Growing crops in combination with needed cultural and management practices. In a good conservation cropping system, the soil-improving crops and practices more than offset the soil-depleting crops and practices. Cropping systems are needed on all tilled soils. Soil-improving practices in a conservation cropping system include the use of rotations that contain grasses and legumes and the return of crop residue to the soil. Other practices include the use of green manure crops of grasses and legumes, proper tillage, adequate fertilization, and weed and pest control.

Conservation tillage. Any tillage and planting system in which a cover of crop residue is maintained on at least 30 percent of the surface after planting in order to reduce the hazard of water erosion; in areas where wind erosion is the primary concern, a system that maintains a cover of at least 1,000 pounds of flat residue of small grain or its equivalent during the critical erosion period.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Corrosive. High risk of corrosion to uncoated steel or deterioration of concrete.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Cropping system. Growing crops according to a planned system of rotation and management practices.

Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depression. Any relatively sunken part of the earth’s surface; especially a low-lying area surrounded by higher ground. A closed depression has no natural outlet for surface drainage. An open depression has a natural outlet for surface drainage.

Depth, soil. The thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep soils, 20 to 40 inches; shallow soils, 10 to 20 inches; and very shallow soils, less than 10 inches.

Depth to bedrock (in tables). Bedrock is too near the surface for the specified use.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of periods of saturation or partial saturation during soil formation, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven classes of natural soil drainage are recognized:

Excessively drained.—These soils have very high and high hydraulic conductivity and a low water-holding capacity. They are not suited to crop production unless irrigated.

Somewhat excessively drained.—These soils have high hydraulic conductivity and a low water-holding capacity. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained.—These soils have an intermediate or high water-holding capacity. They retain optimum amounts of moisture, but they are not wet close enough to the surface or long enough during the growing season to adversely affect yields.

Moderately well drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or yields of most field crops are affected. Moderately well drained soils commonly have a layer with low hydraulic conductivity, a wet layer relatively high in the profile, additions of water by seepage, or some combination of these.

Somewhat poorly drained.—These soils are wet close enough to the surface or long enough that planting or harvesting operations or crop growth is markedly restricted under natural conditions. Somewhat poorly drained soils commonly have a layer with low hydraulic conductivity, a wet layer high in the profile, additions of water through seepage, or a combination of these.

Poorly drained.—These soils commonly are so wet at or near the surface during a considerable part of the year that field crops cannot be grown under natural conditions. Poor drainage is caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these.

Very poorly drained.—These soils are wet to the surface most of the time. The wetness prevents the growth of important crops under natural conditions.

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A relatively small, linear depression that, at some time, moves concentrated water and either does not have a defined channel or has a small, defined channel.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above a zone in which the soil moisture status is wet at all times.

Episaturation. A type of saturation indicating a perched zone in which the soil moisture status is wet in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. The term is more often applied to cliffs resulting from differential erosion.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called normal field capacity, normal moisture capacity, or capillary capacity.

Fine textured soil. Sandy clay, silty clay, or clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flaggy soil material. Material that is, by volume, 15 to 35 percent flagstones. Very flaggy soil material is 35 to 60 percent flagstones, and extremely flaggy soil material is more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to inundation under flood-stage conditions unless protected artificially. It is generally a constructional landform consisting of sediment deposited during overflow and lateral migration of the stream.

Flood-plain step. An essentially flat, terrace-like alluvial surface within a valley that is frequently covered by flood water from the present stream; any approximately horizontal surface still actively modified by fluvial scour and/or fill processes. May occur individually or as a series of steps.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest habitat type. An association of dominant tree and ground flora species in a climax community.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Geomorphology. The science that treats the general configuration of the earth's surface; specifically the study of the classification, description, nature, origin, and development of landforms and their relationships to underlying structures and the history of geologic changes as recorded by these surface features. The term is especially applied to the genetic interpretation of landforms.

Glacial drift. Pulverized and other rock material transported by glacial ice and then deposited. Also, the sorted and unsorted material deposited by streams flowing from glaciers.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as protection against erosion. Conducts surface water away from cropland.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that is 15 to 50 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Green manure crop (agronomy). A soil-improving crop grown to be plowed under in an early stage of maturity or soon after maturity.

Ground water. Water filling all the unblocked pores of underlying material below the top of where the soil moisture status is wet.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Head slope. A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

High-chroma zones. Zones having chroma of 3 or more (the typical color in areas of iron concentrations).

High-residue crops. Such crops as small grain and corn used for grain. If properly managed, residue from these crops can be used to control erosion until the next crop in the rotation is established. These crops return large amounts of organic matter to the soil.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 6 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that

in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff-producing characteristics. The chief consideration is the inherent capacity of soil bare of vegetation to permit infiltration. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff. Soils are assigned to four groups. In group A, soils have a high infiltration rate when thoroughly wet and have a low runoff potential. They are mainly deep, well drained, and sandy or gravelly. In group D, at the other extreme, soils have a very slow infiltration rate and thus a high runoff potential. They have a claypan or clay layer at or near the surface, have a zone with wet soil moisture status high in the profile on a permanent basis, or are shallow over nearly impervious bedrock or other material. A soil is assigned to two hydrologic groups if part of the acreage is artificially drained and part is undrained.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. An elevated area between two drainageways that sheds water to those drainageways.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Iron concentrations. High-chroma zones having a high content of iron and manganese oxide because of chemical oxidation and accumulation, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic concentration.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. The controlled application of water to supplement rainfall and support plant growth. The design and management of an irrigation system are affected by depth to the water table, the need for drainage, flooding, available water capacity, intake rate, permeability, erosion hazard, and slope. The construction of a system is affected by large stones and depth to bedrock. The performance of a system is affected by the depth of the root zone, the formation of plow pans, the intake rate, and soil reaction.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$-bar or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Loess. Fine-grained material, dominantly of silt-sized particles, deposited by the wind.

Low-chroma zones. Zones having chroma of 2 or less (the typical color in areas of iron depletions).

Low-residue crops. Such crops as corn used for silage, peas, beans, and potatoes. Residue from these crops is not adequate to control erosion until the next crop in the rotation is established. These crops return little organic matter to the soil.

Low strength. The soil is not strong enough to support loads.

MAP. Mean annual precipitation, expressed in inches.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value between 6.6 and 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nose slope. A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Parent material. The unconsolidated organic and mineral material in which soil forms.

Parts per million (ppm). The concentration of a substance in the soil, such as phosphorus or potassium, in one million parts of air-dried soil on a weight per weight basis.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedisediment. A thin layer of alluvial material that mantles an erosion surface and has been transported to its present position from higher areas of the erosion surface.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse-grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Burning an area under conditions of weather and soil moisture and at the time of day that will result in the intensity of heat and spread required to accomplish specific forest management, wildlife, grazing, or fire hazard reduction purposes.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed. These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill is generally a few inches deep and not wide enough to be an obstacle to farm machinery.

Rise. A slight increase in elevation of the land surface, typically with a broad summit and gently sloping sides.

Riser. The relatively short, steeply sloping area below a terrace tread that grades to a lower terrace tread or a base level.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of bare bedrock other than rock-lined pits.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sandstone. Sedimentary rock containing dominantly sand-sized particles.

Saturation. Wetness characterized by zero or positive pressure of the soil water.

Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sawtimber. Hardwood trees more than 11 inches in diameter and conifers more than 9 inches in diameter at breast height.

Second bottom. The first terrace above the normal flood plain (or first bottom) of a river.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock formed by the hardening of a clay deposit.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Siltstone. Sedimentary rock made up of dominantly silt-sized particles.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the substratum. The living roots and plant and animal activities are largely confined to the solum.

Sprinkler irrigation. A method of irrigation in which water is pumped through nozzles and sprayed, or sprinkled, through the air to the ground surface.

Stone line. A concentration of rock fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel. It originally formed near the level of the stream and is the dissected remnants of an abandoned flood plain, streambed, or valley floor that were produced during a former stage of erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), blocky (angular or subangular), and *granular*. *Structureless* soils are either *single grain* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Stubble mulch. Stubble or other crop residue left on the soil or partly worked into the soil. It protects the soil from wind and water erosion after harvest, during preparation of a seedbed for the next crop, and during the early growing period of the new crop.

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter or loosen a layer that restricts roots.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil,

ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Swale. A slight depression in the midst of generally level land; a shallow depression in an undulating ground moraine due to uneven glacial deposition.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field is generally built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, and clay. The sand, loamy sand, and sandy loam classes may be further divided by specifying “coarse,” “fine,” or “very fine.”

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Tread. The relatively flat terrace surface that was cut or built by stream or wave action.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Valley fill. In glaciated regions, material deposited in stream valleys by glacial meltwater. In nonglaciated regions, alluvium deposited by heavily loaded streams.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth’s surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse-grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded in the period 1961-90 at Anna, Illinois)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temp. higher than--	2 years in 10 will have-- Minimum temp. lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snow-fall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January--	40.8	22.5	31.7	67	-8	49	3.02	1.30	4.48	5	5.5
February-	45.9	26.3	36.1	71	0	80	3.38	1.76	4.80	5	4.8
March----	57.2	36.3	46.8	80	13	258	5.18	2.92	7.18	7	2.4
April----	68.4	46.4	57.4	87	27	519	4.60	2.72	6.27	7	0.2
May------	77.5	54.9	66.2	91	36	803	5.20	2.90	7.23	7	0.0
June-----	85.9	63.3	74.6	97	48	1,031	3.76	1.90	5.38	5	0.0
July-----	89.1	67.2	78.2	99	53	1,176	3.86	1.74	5.68	5	0.0
August---	87.5	65.3	76.4	99	51	1,123	3.88	1.58	5.83	5	0.0
September	80.7	58.6	69.7	95	40	885	3.29	1.39	4.90	5	0.0
October--	70.4	46.8	58.6	87	27	572	3.03	0.99	4.70	4	0.0
November-	57.2	37.8	47.5	78	15	259	4.16	2.20	5.88	6	0.5
December-	44.7	27.4	36.1	68	-1	81	4.33	2.09	6.27	6	2.7
Yearly:											
Average	67.1	46.1	56.6	---	---	---	---	---	---	---	---
Extreme	106	-17	---	101	-10	---	---	---	---	---	---
Total--	---	---	---	---	---	6,834	47.68	40.10	54.95	67	16.1

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.—Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Anna, Illinois)

Probability	Temperature: 24 ^{o}F or lower	Temperature: 28 ^{o}F or lower	Temperature: 32 ^{o}F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	Apr. 7	Apr. 10	Apr. 23
2 years in 10 later than--	Mar. 31	Apr. 5	Apr. 18
5 years in 10 later than--	Mar. 19	Mar. 27	Apr. 8
First freezing temperature in fall:			
1 year in 10 earlier than--	Nov. 1	Oct. 26	Oct. 11
2 years in 10 earlier than--	Nov. 6	Oct. 30	Oct. 16
5 years in 10 earlier than-	Nov. 16	Nov. 9	Oct. 25

Table 3.—Growing Season

(Recorded in the period 1961-90 at Anna, Illinois)

Probability	Daily minimum temperature during growing season: Higher than 24 ^{o}F	Higher than 28 ^{o}F	Higher than 32 ^{o}F
	Days	Days	Days
9 years in 10	218	205	184
8 years in 10	226	212	189
5 years in 10	241	226	199
2 years in 10	256	240	208
1 year in 10	263	248	213

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
79B	Menfro silt loam, 2 to 5 percent slopes	254	0.1
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded	285	0.1
79C3	Menfro silt loam, 5 to 10 percent slopes, severely eroded	9	*
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded	93	*
79D3	Menfro silt loam, 10 to 18 percent slopes, severely eroded	178	*
79E2	Menfro silt loam, 18 to 25 percent slopes, eroded	26	*
79E3	Menfro silt loam, 18 to 25 percent slopes, severely eroded	238	0.1
79F	Menfro silt loam, 25 to 35 percent slopes	126	*
99G	Sandstone and Limestone Rock Land, 35 to 90 percent slopes	4	*
164A	Stoy silt loam, 0 to 2 percent slopes	36	*
164B	Stoy silt loam, 2 to 5 percent slopes	86	*
175A	Lamont fine sandy loam, 0 to 2 percent slopes	37	*
175B	Lamont fine sandy loam, 2 to 5 percent slopes	21	*
175C2	Lamont fine sandy loam, 5 to 10 percent slopes, eroded	23	*
214B	Hosmer silt loam, 2 to 5 percent slopes	13,017	5.8
214C2	Hosmer silt loam, 5 to 10 percent slopes, eroded	16,066	7.2
214C3	Hosmer silt loam, 5 to 10 percent slopes, severely eroded	11,307	5.1
214D2	Hosmer silt loam, 10 to 18 percent slopes, eroded	6,605	3.0
214D3	Hosmer silt loam, 10 to 18 percent slopes, severely eroded	18,738	8.4
301B	Grantsburg silt loam, 2 to 5 percent slopes	11,469	5.1
301C2	Grantsburg silt loam, 5 to 10 percent slopes, eroded	8,173	3.7
301C3	Grantsburg silt loam, 5 to 10 percent slopes, severely eroded	11,831	5.3
301D2	Grantsburg silt loam, 10 to 18 percent slopes, eroded	1,098	0.5
301D3	Grantsburg silt loam, 10 to 18 percent slopes, severely eroded	4,773	2.1
335B	Robbs silt loam, 1 to 4 percent slopes	401	0.2
339C	Wellston silt loam, 5 to 10 percent slopes	11	*
339D	Wellston silt loam, 10 to 18 percent slopes	561	0.3
339D2	Wellston silt loam, 10 to 18 percent slopes, eroded	407	0.2
339F	Wellston silt loam, 18 to 35 percent slopes	1,487	0.7
340C2	Zanesville silt loam, 5 to 10 percent slopes, eroded	536	0.2
340C3	Zanesville silt loam, 5 to 10 percent slopes, severely eroded	3,654	1.6
340D	Zanesville silt loam, 10 to 18 percent slopes	3	*
340D2	Zanesville silt loam, 10 to 18 percent slopes, eroded	5,183	2.3
340D3	Zanesville silt loam, 10 to 18 percent slopes, severely eroded	15,389	6.9
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded	3	*
691D	Beasley silt loam, 10 to 18 percent slopes	1	*
691F	Beasley silt loam, 18 to 35 percent slopes	3	*
793F	Berks, Muskingum, and Weikert soils, 18 to 35 percent slopes	1,251	0.6
793G	Berks, Muskingum, and Weikert soils, 35 to 70 percent slopes	3,757	1.7
801B	Orthents, silty, undulating	33	*
802D	Orthents, loamy, hilly	75	*
802F	Orthents, loamy, hilly and very hilly	468	0.2
834F	Wellston-Westmore silt loams, 18 to 35 percent slopes	64	*
864	Pits, quarries	358	0.2
865	Pits, gravel	5	*
940D2	Zanesville-Westmore silt loams, 10 to 18 percent slopes, eroded	102	*
955F	Muskingum and Berks soils, 18 to 35 percent slopes	294	0.1
955G	Muskingum and Berks soils, 35 to 70 percent slopes	2	*
977F	Wellston-Neotoma complex, 18 to 35 percent slopes	24	*
986D	Wellston-Berks complex, 10 to 18 percent slopes	464	0.2
986D2	Wellston-Berks complex, 10 to 18 percent slopes, eroded	10,294	4.6
986D3	Wellston-Berks complex, 10 to 18 percent slopes, severely eroded	628	0.3
986F	Wellston-Berks complex, 18 to 35 percent slopes	20,829	9.3
1334A	Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded	39	*
1843A	Bonnie and Petrolia soils, undrained, 0 to 2 percent slopes, frequently flooded	5,097	2.3
1846A	Karnak and Cape silty clays, undrained, 0 to 2 percent slopes, frequently flooded	2,614	1.2
3071A	Darwin silty clay, 0 to 2 percent slopes, frequently flooded	80	*
3108A	Bonnie silt loam, 0 to 2 percent slopes, frequently flooded	1,951	0.9
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded	142	*

See footnote at end of table

Table 4.—Acreage and Proportionate Extent of the Soils—Continued

Map symbol	Soil name	Acres	Percent
3288A	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded------	2	*
3331A	Haymond silt loam, 0 to 3 percent slopes, frequently flooded-------------	25	*
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded------------	28	*
3334A	Birds silt loam, 0 to 2 percent slopes, frequently flooded---------------	15	*
3382A	Belknap silt loam, 0 to 2 percent slopes, frequently flooded-------------	3,537	1.6
3420A	Piopolis silty clay loam, 0 to 2 percent slopes, frequently flooded------	424	0.2
3426A	Karnak silty clay, 0 to 2 percent slopes, frequently flooded-------------	813	0.4
7460A	Ginat silt loam, 0 to 2 percent slopes, rarely flooded-------------------	1,219	0.5
7462A	Sciotoville silt loam, 0 to 2 percent slopes, rarely flooded-------------	286	0.1
7462B	Sciotoville silt loam, 2 to 5 percent slopes, rarely flooded-------------	422	0.2
7462C2	Sciotoville silt loam, 5 to 10 percent slopes, eroded, rarely flooded----	181	*
7462C3	Sciotoville silt loam, 5 to 10 percent slopes, severely eroded, rarely flooded---	22	*
7462D2	Sciotoville silt loam, 10 to 18 percent slopes, eroded, rarely flooded---	26	*
7463B	Wheeling silt loam, 2 to 5 percent slopes, rarely flooded----------------	150	*
7463C2	Wheeling silt loam, 5 to 10 percent slopes, eroded, rarely flooded-------	25	*
7711A	Hatfield silt loam, 0 to 2 percent slopes, rarely flooded----------------	793	0.4
7711B	Hatfield silt loam, 2 to 5 percent slopes, rarely flooded----------------	381	0.2
7711B2	Hatfield silt loam, 2 to 5 percent slopes, eroded, rarely flooded--------	48	*
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded-----------	558	0.3
8072A	Sharon silt loam, 0 to 3 percent slopes, occasionally flooded------------	8,769	3.9
8108A	Bonnie silt loam, 0 to 2 percent slopes, occasionally flooded------------	4,116	1.8
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded--------------	428	0.2
8331A	Haymond silt loam, 0 to 3 percent slopes, occasionally flooded-----------	21	*
8333A	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded----------	237	0.1
8382A	Belknap silt loam, 0 to 2 percent slopes, occasionally flooded-----------	12,860	5.8
8420A	Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded----	146	*
8426A	Karnak silty clay, 0 to 2 percent slopes, occasionally flooded-----------	610	0.3
8427B	Burnside silt loam, 1 to 4 percent slopes, occasionally flooded----------	3,565	1.6
8787A	Banlic silt loam, 0 to 2 percent slopes, occasionally flooded------------	1	*
W	Water--	2,734	1.2
	Total--	223,145	100.0

* Less than 0.1 percent.

Table 5.—Cropland and Pastureland Limitations and Hazards

(See text for a description of the limitations and hazards listed in this table. Absence of an entry indicates the map unit is generally unsuited to cropland or to pastureland)

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
79B:		
Menfro	Crusting, water erosion.	Low pH, water erosion.
79C2:		
Menfro	Crusting, water erosion.	Low pH, water erosion.
79C3:		
Menfro	Crusting, water erosion.	Low pH, water erosion, low fertility.
79D2:		
Menfro	Crusting, water erosion.	Low pH, water erosion.
79D3:		
Menfro	Crusting, water erosion.	Low pH, water erosion, low fertility.
79E2:		
Menfro	---	Equipment limitation, low pH, water erosion.
79E3:		
Menfro	---	Equipment limitation, low pH, water erosion, low fertility.
79F:		
Menfro	---	Equipment limitation, low pH, water erosion.
99G:		
Sandstone Rock Land	---	Generally unsuited.
Limestone Rock Land	---	Generally unsuited.
164A:		
Stoy	Wetness, crusting, restricted permeability.	Wetness, low pH.
164B:		
Stoy	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion.
175A:		
Lamont	Excessive permeability.	Low pH, excessive permeability.
175B:		
Lamont	Water erosion, excessive permeability.	Low pH, excessive permeability.
175C2:		
Lamont	Water erosion, excessive permeability.	Low pH, water erosion, low fertility, excessive permeability.

Table 5.—Cropland and Pastureland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
214B:		
Hosmer	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
214C2:		
Hosmer	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
214C3:		
Hosmer	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion, low fertility.
214D2:		
Hosmer	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
214D3:		
Hosmer	---	Wetness, root-restrictive layer, low pH, water erosion, low fertility.
301B:		
Grantsburg	Wetness, root-restrictive layer, low pH, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
301C2:		
Grantsburg	Wetness, root-restrictive layer, low pH, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
301C3:		
Grantsburg	Wetness, root-restrictive layer, low pH, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
301D2:		
Grantsburg	Wetness, root-restrictive layer, low pH, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
301D3:		
Grantsburg	---	Wetness, root-restrictive layer, low pH, water erosion.
335B:		
Robbs	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.

Table 5.—Cropland and Pastureland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
339C:		
Wellston	Crusting, water erosion.	Low pH, water erosion.
339D:		
Wellston	Crusting, water erosion.	Low pH, water erosion.
339D2:		
Wellston	Crusting, water erosion.	Low pH, water erosion.
339F:		
Wellston	---	Equipment limitation, low pH, water erosion.
340C2:		
Zanesville	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
340C3:		
Zanesville	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion, low fertility.
340D:		
Zanesville	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
340D2:		
Zanesville	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
340D3:		
Zanesville	---	Wetness, root-restrictive layer, low pH, water erosion, low fertility.
477C2:		
Winfield	Crusting, water erosion.	Low pH, water erosion.
691D:		
Beasley	Crusting, water erosion, limited available water capacity, restricted permeability.	Low pH, water erosion, limited available water capacity.
691F:		
Beasley	---	Equipment limitation, low pH, water erosion.
793F:		
Berks	---	Generally unsuited.
Muskingum	---	Generally unsuited.
Weikert	---	Generally unsuited.

Table 5.—Cropland and Pastureland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
793G:		
Berks	---	Generally unsuited.
Muskingum	---	Generally unsuited.
Weikert	---	Generally unsuited.
801B:		
Orthents, silty	Crusting, water erosion.	Low pH, water erosion, low fertility.
802D:		
Orthents, loamy	Water erosion, restricted permeability.	Water erosion, low fertility.
802F:		
Orthents, loamy	---	Generally unsuited.
834F:		
Wellston	---	Equipment limitation, low pH, water erosion.
Westmore	---	Equipment limitation, low pH, water erosion.
864.		
Pits, quarries		
865.		
Pits, gravel		
940D2:		
Westmore	Crusting, water erosion, restricted permeability.	Low pH, water erosion.
Zanesville	Wetness, root-restrictive layer, crusting, water erosion, restricted permeability.	Wetness, root-restrictive layer, low pH, water erosion.
955F:		
Muskingum	---	Equipment limitation, low pH, water erosion.
Berks	---	Equipment limitation, low pH, water erosion.
955G:		
Muskingum	---	Generally unsuited.
Berks	---	Generally unsuited.
977F:		
Neotoma	---	Equipment limitation, very gravelly surface-equipment limitation, low pH, water erosion.
Wellston	---	Equipment limitation, low pH, water erosion.

Table 5.—Cropland and Pastureland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
986D:		
Wellston	Crusting, water erosion.	Low pH, water erosion.
Berks	Low pH, crusting, water erosion, limited available water capacity.	Low pH, water erosion, limited available water capacity.
986D2:		
Wellston	Crusting, water erosion.	Low pH, water erosion.
Berks	Low pH, crusting, water erosion, limited available water capacity.	Low pH, water erosion, limited available water capacity.
986D3:		
Wellston	---	Low pH, water erosion, low fertility.
Berks	---	Low pH, water erosion, limited available water capacity.
986F:		
Wellston	---	Equipment limitation, low pH, water erosion.
Berks	---	Equipment limitation, low pH, water erosion.
1334A:		
Birds	---	Flooding, ponding, low pH, frost heave.
1843A:		
Bonnie	---	Flooding, ponding, low pH, frost heave.
Petrolia	---	Flooding, ponding, poor tilth, frost heave.
1846A:		
Karnak	---	Flooding, ponding, poor tilth, frost heave.
Cape	---	Flooding, ponding, poor tilth, low pH, frost heave.
3071A:		
Darwin	Flooding, ponding, poor tilth, restricted permeability.	Flooding, ponding, frost heave.
3108A:		
Bonnie	Flooding, ponding, crusting, restricted permeability.	Flooding, ponding, low pH, frost heave.
3180A:		
Dupo	Flooding, wetness, restricted permeability.	Flooding, wetness.
3288A:		
Petrolia	Flooding, ponding, poor tilth, crusting, restricted permeability.	Flooding, ponding, poor tilth, frost heave.

Table 5.—Cropland and Pastureland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
3331A:		
Haymond	Flooding, water erosion.	Flooding.
3333A:		
Wakeland	Flooding, wetness.	Flooding, wetness.
3334A:		
Birds	Flooding, ponding, crusting, restricted permeability.	Flooding, ponding, low pH, frost heave.
3382A:		
Belknap	Flooding, wetness.	Flooding, wetness, low pH.
3420A:		
Piopolis	Flooding, ponding, poor tilth, crusting, restricted permeability.	Flooding, ponding, poor tilth, low pH, frost heave.
3426A:		
Karnak	Flooding, ponding, poor tilth, poor tilth, restricted permeability.	Flooding, ponding, poor tilth, frost heave.
7460A:		
Ginat	Ponding, restricted permeability.	Ponding, low pH, frost heave.
7462A:		
Sciotoville	Wetness, crusting, restricted permeability.	Wetness, low pH.
7462B:		
Sciotoville	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion.
7462C2:		
Sciotoville	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion.
7462C3:		
Sciotoville	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion, low fertility.
7462D2:		
Sciotoville	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion.
7463B:		
Wheeling	Crusting, water erosion, excessive permeability.	Low pH, water erosion, excessive permeability.
7463C2:		
Wheeling	Crusting, water erosion, excessive permeability.	Low pH, water erosion, excessive permeability.
7711A:		
Hatfield	Wetness, crusting, restricted permeability.	Wetness, low pH.

Table 5.—Cropland and Pastureland Limitations and Hazards—Continued

Soil name and map symbol	Cropland limitations and hazards	Pastureland limitations and hazards
7711B:		
Hatfield	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion.
7711B2:		
Hatfield	Wetness, crusting, water erosion, restricted permeability.	Wetness, low pH, water erosion.
8071A:		
Darwin	Flooding, ponding, poor tilth, restricted permeability.	Flooding, ponding, frost heave.
8072A:		
Sharon	Flooding, water erosion.	Flooding, low pH.
8108A:		
Bonnie	Flooding, ponding, crusting, restricted permeability.	Flooding, ponding, low pH, frost heave.
8180A:		
Dupo	Flooding, wetness, restricted permeability.	Flooding, wetness.
8331A:		
Haymond	Flooding, water erosion.	Flooding.
8333A:		
Wakeland	Flooding, wetness.	Flooding, wetness.
8382A:		
Belknap	Flooding, wetness.	Flooding, wetness, low pH.
8420A:		
Piopolis	Flooding, ponding, poor tilth, crusting, restricted permeability.	Flooding, ponding, poor tilth, low pH, frost heave.
8426A:		
Karnak	Flooding, ponding, poor tilth, restricted permeability.	Flooding, ponding, poor tilth, frost heave.
8427B:		
Burnside	Flooding, crusting, water erosion.	Flooding, low pH.
8787A:		
Banlic	Flooding, wetness, restricted permeability.	Flooding, wetness, low pH.
W.		
Water		

Table 6.—Land Capability and Yields per Acre of Crops and Pasture

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
79B:							
Menfro--------------	2e	148.00	109.00	46.00	56.00	4.40	6.40
79C2:							
Menfro--------------	3e	139.00	102.00	43.00	53.00	4.10	6.00
79C3:							
Menfro--------------	4e	128.00	95.00	40.00	49.00	3.80	5.50
79D2:							
Menfro--------------	4e	127.00	94.00	39.00	49.00	3.80	5.40
79D3:							
Menfro--------------	4e	116.00	86.00	36.00	45.00	3.40	4.90
79E2:							
Menfro--------------	6e	---	---	---	---	3.30	4.70
79E3:							
Menfro--------------	6e	---	---	---	---	3.00	4.20
79F:							
Menfro--------------	6e	---	---	---	---	2.70	3.80
99G:							
Limestone Rock Land-	7e	---	---	---	---	---	---
Sandstone Rock Land-	7e	---	---	---	---	---	---
164A:							
Stoy----------------	2w	131.00	102.00	42.00	52.00	4.20	6.20
164B:							
Stoy----------------	2e	130.00	101.00	42.00	51.00	4.10	6.00
175A:							
Lamont--------------	2s	118.00	---	39.00	49.00	2.90	4.30
175B:							
Lamont--------------	2e	117.00	---	39.00	49.00	2.90	4.30
175C2:							
Lamont--------------	3e	110.00	---	36.00	46.00	2.70	4.00

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
214B:							
Hosmer--------------	2e	125.00	98.00	41.00	51.00	3.30	4.70
214C2:							
Hosmer--------------	3e	113.00	89.00	37.00	47.00	3.00	4.20
214C3:							
Hosmer--------------	4e	93.00	73.00	30.00	38.00	2.40	3.50
214D2:							
Hosmer--------------	4e	101.00	79.00	33.00	42.00	2.60	3.70
214D3:							
Hosmer--------------	6e	---	---	---	---	2.10	3.10
301B:							
Grantsburg----------	2e	119.00	93.00	41.00	50.00	2.91	4.20
301C2:							
Grantsburg----------	3e	108.00	85.00	37.00	45.00	2.70	3.80
301C3:							
Grantsburg----------	4e	89.00	70.00	30.00	37.00	2.20	3.10
301D2:							
Grantsburg----------	4e	96.00	75.00	33.00	40.00	2.40	3.40
301D3:							
Grantsburg----------	6e	---	---	---	---	1.90	2.80
335B:							
Robbs---------------	2e	121.00	96.00	41.00	50.00	3.90	5.70
339C:							
Wellston------------	3e	103.00	---	36.00	41.00	3.20	4.60
339D:							
Wellston------------	4e	93.00	---	32.00	37.00	2.90	4.20
339D2:							
Wellston------------	4e	86.00	---	30.00	34.00	2.60	3.70
339F:							
Wellston------------	6e	---	---	---	---	1.87	2.70
340C2:							
Zanesville----------	3e	101.00	---	34.00	42.00	3.20	4.60

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
340C3:							
Zanesville	4e	83.00	---	28.00	35.00	2.60	3.70
340D:							
Zanesville	4e	97.00	---	33.00	41.00	3.00	4.60
340D2:							
Zanesville	4e	92.00	---	31.00	39.00	2.87	4.30
340D3:							
Zanesville	6e	---	---	---	---	2.30	3.30
477C2:							
Winfield	3e	136.00	103.00	42.00	53.00	4.20	6.20
691D:							
Beasley	4e	88.00	---	31.00	32.00	3.30	4.70
691F:							
Beasley	6e	---	---	---	---	2.20	3.10
793F:							
Berks	7e	---	---	---	---	---	---
Muskingum	7e	---	---	---	---	---	---
Weikert	7e	---	---	---	---	---	---
793G:							
Berks	7e	---	---	---	---	---	---
Muskingum	7e	---	---	---	---	---	---
Weikert	7e	---	---	---	---	---	---
801B:							
Orthents, silty	2e	---	---	---	---	---	---
802D:							
Orthents, loamy	3e	---	---	---	---	---	---
802F:							
Orthents, loamy	7e	---	---	---	---	---	---
834F:							
Wellston	6e	---	---	---	---	1.87	2.70
Westmore	6e	---	---	---	---	1.83	2.60

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
864. Pits, quarries							
865. Pits, gravel							
940D2:							
Westmore	4e	87.00	---	30.00	35.00	2.57	3.70
Zanesville	4e	90.00	---	30.00	38.00	2.80	4.10
955F:							
Berks	6e	---	---	---	---	1.30	1.90
Muskingum	6e	---	---	---	---	1.34	1.90
955G:							
Berks	7e	---	---	---	---	---	---
Muskingum	7e	---	---	---	---	---	---
977F:							
Neotoma	6e	---	---	---	---	2.09	3.00
Wellston	6e	---	---	---	---	1.87	2.70
986D:							
Berks	4e	62.00	---	23.00	25.00	2.00	2.90
Wellston	4e	93.00	---	32.00	37.00	3.20	4.30
986D2:							
Berks	4e	57.00	---	21.00	23.00	1.80	2.60
Wellston	4e	86.00	---	30.00	34.00	3.00	3.80
986D3:							
Berks	6e	---	---	---	---	1.90	2.70
Wellston	6e	---	---	---	---	2.13	3.10
986F:							
Berks	6e	---	---	---	---	1.29	1.87
Wellston	6e	---	---	---	---	2.12	2.71
1334A:							
Birds	5w	---	---	---	---	---	---

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
1843A:							
Bonnie	5w	---	---	---	---	---	---
Petrolia	5w	---	---	---	---	---	---
1846A:							
Cape	5w	---	---	---	---	---	---
Karnak	5w	---	---	---	---	---	---
3071A:							
Darwin	4w	121.00	---	41.00	---	3.56	5.20
3108A:							
Bonnie	3w	121.00	---	40.00	---	3.76	5.60
3180A:							
Dupo	2w	148.00	---	46.00	---	4.20	6.10
3288A:							
Petrolia	3w	131.00	---	40.00	---	4.00	5.90
3331A:							
Haymond	2w	147.00	---	46.00	---	4.68	6.90
3333A:							
Wakeland	2w	141.00	---	46.00	---	4.17	6.20
3334A:							
Birds	3w	127.00	---	42.00	---	3.97	5.80
3382A:							
Belknap	3w	127.00	---	42.00	---	3.96	5.90
3420A:							
Piopolis	3w	115.00	---	40.00	---	3.56	5.20
3426A:							
Karnak	3w	109.00	---	37.00	---	3.26	4.80
7460A:							
Ginat	3w	128.00	---	44.00	53.00	4.00	5.80
7462A:							
Sciotoville	2w	126.00	---	42.00	53.00	3.60	5.30
7462B:							
Sciotoville	2e	125.00	---	42.00	52.00	3.60	5.20

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
7462C2:							
Sciotoville----------	3e	117.00	---	39.00	49.00	3.40	4.90
7462C3:							
Sciotoville----------	4e	108.00	---	36.00	46.00	3.11	4.50
7462D2:							
Sciotoville----------	4e	107.00	---	36.00	45.00	3.07	4.40
7463B:							
Wheeling------------	2e	131.00	---	43.00	52.00	3.36	5.00
7463C2:							
Wheeling------------	3e	123.00	---	40.00	49.00	3.15	4.60
7711A:							
Hatfield------------	2w	126.00	---	42.00	53.00	4.18	6.20
7711B:							
Hatfield------------	2e	125.00	---	42.00	52.00	4.14	6.00
7711B2:							
Hatfield------------	2e	117.00	---	40.00	50.00	3.97	5.90
8071A:							
Darwin--------------	3w	134.00	---	45.00	54.00	3.96	5.80
8072A:							
Sharon--------------	2w	148.00	---	48.00	57.00	4.30	6.30
8108A:							
Bonnie--------------	3w	134.00	---	44.00	53.00	4.18	6.20
8180A:							
Dupo----------------	2w	164.00	---	51.00	61.00	4.60	6.80
8331A:							
Haymond-------------	2w	163.00	---	51.00	63.00	5.20	7.70
8333A:							
Wakeland------------	2w	157.00	---	51.00	61.00	4.63	6.80
8382A:							
Belknap-------------	2w	141.00	---	47.00	57.00	4.41	6.50
8420A:							
Piopolis------------	3w	128.00	---	44.00	53.00	3.96	5.80

Table 6.—Land Capability and Yields per Acre of Crops and Pasture—Continued

Map symbol and soil name	Land capability	Corn	Grain sorghum	Soybeans	Winter wheat	Grass-legume hay	Grass-legume pasture
		Bu	Bu	Bu	Bu	Tons	AUM
8426A:							
Karnak--------------	3w	121.00	---	41.00	47.00	3.62	5.30
8427B:							
Burnside------------	2s	115.00	---	39.00	46.00	2.83	4.10
8787A:							
Banlic--------------	2w	128.00	---	42.00	51.00	4.20	6.20
W.							
Water							

Table 7.—Prime Farmland

(Only the soils considered prime farmland are listed. Urban or built-up areas of the soils listed are not considered prime farmland. If a soil is prime farmland only under certain conditions, the conditions are specified in parentheses after the soil name)

Map symbol	Soil name
79B	Menfro silt loam, 2 to 5 percent slopes
164A	Stoy silt loam, 0 to 2 percent slopes
164B	Stoy silt loam, 2 to 5 percent slopes
175A	Lamont fine sandy loam, 0 to 2 percent slopes
175B	Lamont fine sandy loam, 2 to 5 percent slopes
214B	Hosmer silt loam, 2 to 5 percent slopes
301B	Grantsburg silt loam, 2 to 5 percent slopes
335B	Robbs silt loam, 1 to 4 percent slopes
3071A	Darwin silty clay, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3108A	Bonnie silt loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
3288A	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3331A	Haymond silt loam, 0 to 3 percent slopes, frequently flooded (if protected from flooding or not frequently flooded during the growing season)
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3334A	Birds silt loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3382A	Belknap silt loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
3420A	Piopolis silty clay loam, 0 to 2 percent slopes, frequently flooded (if drained and either protected from flooding or not frequently flooded during the growing season)
7460A	Ginat silt loam, 0 to 2 percent slopes, rarely flooded (if drained)
7462A	Sciotoville silt loam, 0 to 2 percent slopes, rarely flooded
7462B	Sciotoville silt loam, 2 to 5 percent slopes, rarely flooded
7463B	Wheeling silt loam, 2 to 5 percent slopes, rarely flooded
7711A	Hatfield silt loam, 0 to 2 percent slopes, rarely flooded (if drained)
7711B	Hatfield silt loam, 2 to 5 percent slopes, rarely flooded (if drained)
7711B2	Hatfield silt loam, 2 to 5 percent slopes, eroded, rarely flooded (if drained)
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded (if drained)
8072A	Sharon silt loam, 0 to 3 percent slopes, occasionally flooded
8108A	Bonnie silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
8331A	Haymond silt loam, 0 to 3 percent slopes, occasionally flooded
8333A	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8382A	Belknap silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8420A	Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded (if drained)
8427B	Burnside silt loam, 1 to 4 percent slopes, occasionally flooded
8787A	Banlic silt loam, 0 to 2 percent slopes, occasionally flooded (if drained)

Table 8.—Map Units With Major Components of Hydric Soils

Map symbol and map unit name	Component	Hydric	Landform	Hydric soils criteria		
				Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
1334A:						
Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded	Birds, undrained, frequently flooded	Yes	flood plains	Yes	Yes	Yes
1843A:						
Bonnie and Petrolia soils, undrained, 0 to 2 percent slopes, frequently flooded	Bonnie, undrained, frequently flooded	Yes	flood plains	Yes	Yes	Yes
	Petrolia, undrained, frequently flooded	Yes	flood plains	Yes	Yes	Yes
1846A:						
Karnak and Cape silty clays, undrained, 0 to 2 percent slopes, frequently flooded	Karnak, undrained, frequently flooded	Yes	flood plains	Yes	Yes	Yes
	Cape, undrained, frequently flooded	Yes	flood plains	Yes	Yes	Yes
3071A:						
Darwin silty clay, 0 to 2 percent slopes, frequently flooded	Darwin, frequently flooded	Yes	flood plains	Yes	No	No
3108A:						
Bonnie silt loam, 0 to 2 percent slopes, frequently flooded	Bonnie, frequently flooded	Yes	flood plains	Yes	No	No
3288A:						
Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded	Petrolia, frequently flooded	Yes	flood plains	Yes	No	No
3334A:						
Birds silt loam, 0 to 2 percent slopes, frequently flooded	Birds, frequently flooded	Yes	flood plains	Yes	No	No
3420A:						
Piopolis silty clay loam, 0 to 2 percent slopes, frequently flooded	Piopolis, frequently flooded	Yes	flood plains	Yes	No	No
3426A:						
Karnak silty clay, 0 to 2 percent slopes, frequently flooded	Karnak, frequently flooded	Yes	flood plains	Yes	No	No

Table 8.—Map Units With Major Components of Hydric Soils—Continued

Map symbol and map unit name	Component	Hydric	Landform	Hydric soils criteria: Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
7460A: Ginat silt loam, 0 to 2 percent slopes, rarely flooded	Ginat, rarely flooded	Yes	terraces	Yes	No	No
8071A: Darwin silty clay, 0 to 2 percent slopes, occasionally flooded	Darwin, occasionally flooded	Yes	flood plains	Yes	No	No
8108A: Bonnie silt loam, 0 to 2 percent slopes, occasionally flooded	Bonnie, occasionally flooded	Yes	flood plains	Yes	No	No
8420A: Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded	Piopolis, occasionally flooded	Yes	flood plains	Yes	No	No
8426A: Karnak silty clay, 0 to 2 percent slopes, occasionally flooded	Karnak, occasionally flooded	Yes	flood plains	Yes	No	No

Table 9.—Map Units With Minor Components of Hydric Soils

Map symbol and map unit name	Component	Hydric	Landform	Hydric soils criteria: Meets saturation criteria	Meets flooding criteria	Meets ponding criteria
164A:						
Stoy silt loam, 0 to 2 percent slopes	Weir, Inclusion MLRA 120	Yes	flats	Yes	No	No
3333A:						
Wakeland silt loam, 0 to 2 percent slopes, frequently flooded	Birds, frequently flooded	Yes	depressions	Yes	No	No
3382A:						
Belknap silt loam, 0 to 2 percent slopes, frequently flooded	Bonnie, frequently flooded	Yes	flood plains	Yes	No	No
	Piopolis, frequently flooded	Yes	flood plains	Yes	No	No
7462A:						
Sciotoville silt loam, 0 to 2 percent slopes, rarely flooded	Ginat, rarely flooded	Yes	terraces	Yes	No	No
7711A:						
Hatfield silt loam, 0 to 2 percent slopes, rarely flooded	Ginat, rarely flooded	Yes	terraces	Yes	No	No
8180A:						
Dupo silt loam, 0 to 2 percent slopes, occasionally flooded	Darwin, occasionally flooded	Yes	flood plains	Yes	No	No
8333A:						
Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded	Birds, occasionally flooded	Yes	flood plains	Yes	No	No
8382A:						
Belknap silt loam, 0 to 2 percent slopes, occasionally flooded	Bonnie, occasionally flooded	Yes	flood plains	Yes	No	No
	Piopolis, occasionally flooded	Yes	flood plains	Yes	No	No

Table 10.—Forestland Management, Part I

Map symbol and soil name	Construction limitations for haul roads and log landings	Suitability of log landings	Harvest equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
79B:			
Menfro	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
79C2:			
Menfro	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
79C3:			
Menfro	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
79D2:			
Menfro	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
79D3:			
Menfro	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
79E2:			
Menfro	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
79E3:			
Menfro	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
79F:			
Menfro	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
99G:			
Sandstone Rock Land	Not rated	Not rated	Not rated
Limestone Rock Land	Not rated	Not rated	Not rated
164A:			
Stoy	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
164B:			
Stoy	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
175A:			
Lamont	Moderate Sandiness	Well suited	Well suited
175B:			
Lamont	Moderate Sandiness	Well suited	Well suited

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings	Suitability of log landings	Harvest equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
175C2:			
Lamont	Slight	Moderately suited Slope	Well suited
214B:			
Hosmer	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
214C2:			
Hosmer	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
214C3:			
Hosmer	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
214D2:			
Hosmer	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
214D3:			
Hosmer	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
301B:			
Grantsburg	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
301C2:			
Grantsburg	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
301C3:			
Grabtsburg	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
301D2:			
Grantsburg	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
301D3:			
Grantsburg	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
335B:			
Robbs	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings	Suitability of log landings	Harvest equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
339C:			
Wellston------------	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
339D:			
Wellston------------	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
339D2:			
Wellston------------	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
339F:			
Wellston------------	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
340C2:			
Zanesville----------	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
340C3:			
Zanesville----------	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
340D:			
Zanesville----------	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
340D2:			
Zanesville----------	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
340D3:			
Zanesville----------	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
477C2:			
Winfield------------	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
691D:			
Beasley-------------	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
691F:			
Beasley-------------	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings: Rating class and limiting features	Suitability of log landings: Rating class and limiting features	Harvest equipment operability for logging areas: Rating class and limiting features
793F:			
Berks	Severe Restrictive layer Slope	Poorly suited Slope	Moderately suited Slope
Muskingum	Moderate Slope Restrictive layer	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Weikert	Severe Restrictive layer Slope	Poorly suited Slope	Moderately suited Slope
793G:			
Berks	Severe Slope	Poorly suited Slope	Poorly suited Slope
Muskingum	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
Weikert	Severe Slope	Poorly suited Slope	Poorly suited Slope
801B:			
Orthents, silty	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
802D:			
Orthents, loamy	Moderate Low strength	Moderately suited Slope Low strength	Moderately suited Low strength
802F:			
Orthents, loamy	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
834F:			
Wellston	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Westmore	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
864:			
Pits, quarries	Not rated	Not rated	Not rated
865:			
Pits, gravel	Not rated	Not rated	Not rated
940D2:			
Zanesville	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings	Suitability of log landings	Harvest equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
940D2:			
Westmore	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
955F:			
Muskingum	Moderate Slope Restrictive layer	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Berks	Severe Restrictive layer Slope	Poorly suited Slope	Moderately suited Slope
955G:			
Muskingum	Severe Slope Low strength	Poorly suited Slope Low strength	Poorly suited Slope Low strength
Berks	Severe Slope	Poorly suited Slope	Poorly suited Slope
977F:			
Wellston	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
Neotoma	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope
986D:			
Wellston	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
Berks	Moderate Restrictive layer	Poorly suited Slope	Well suited
986D2:			
Wellston	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
Berks	Moderate Restrictive layer	Poorly suited Slope	Well suited
986D3:			
Wellston	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
Berks	Moderate Restrictive layer	Poorly suited Slope	Well suited
986F:			
Wellston	Moderate Slope	Poorly suited Slope Low strength	Moderately suited Low strength Slope

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings: Rating class and limiting features	Suitability of log landings: Rating class and limiting features	Harvest equipment operability for logging areas: Rating class and limiting features
986F:			
Berks	Severe Restrictive layer Slope	Poorly suited Slope	Moderately suited Slope
1334A:			
Birds	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Wetness Low strength	Poorly suited Wetness Low strength
1843A:			
Bonnie	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Wetness Low strength	Poorly suited Wetness Low strength
Petrolia	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Wetness Low strength	Poorly suited Wetness Low strength
1846A:			
Karnak	Severe Flooding Wetness Low strength Stickiness/slope	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index	Poorly suited Wetness Low strength Stickiness; high plasticity index
Cape	Severe Flooding Wetness Low strength	Poorly suited Ponding Flooding Wetness Low strength	Poorly suited Wetness Low strength
3071A:			
Darwin	Severe Flooding Low strength Stickiness/slope	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index	Moderately suited Low strength Stickiness; high plasticity index
3108A:			
Bonnie	Severe Flooding Low strength	Poorly suited Ponding Flooding Wetness Low strength	Moderately suited Low strength

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings: Rating class and limiting features	Suitability of log landings: Rating class and limiting features	Harvest equipment operability for logging areas: Rating class and limiting features
3180A:			
Dupo	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
3288A:			
Petrolia	Severe Flooding Low strength	Poorly suited Ponding Flooding Wetness Low strength	Moderately suited Low strength
3331A:			
Haymond	Severe Flooding Low strength	Poorly suited Flooding Low strength	Moderately suited Low strength
3333A:			
Wakeland	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
3334A:			
Birds	Severe Flooding Low strength	Poorly suited Ponding Flooding Wetness Low strength	Moderately suited Low strength
3382A:			
Belknap	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
3420A:			
Piopolis	Severe Flooding Low strength	Poorly suited Ponding Flooding Wetness Low strength	Moderately suited Low strength
3426A:			
Karnak	Severe Flooding Low strength Stickiness/slope	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index	Moderately suited Low strength Stickiness; high plasticity index
7460A:			
Ginat	Moderate Low strength	Poorly suited Ponding Wetness Low strength	Moderately suited Low strength

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings	Suitability of log landings	Harvest equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
7462A:			
Sciotoville	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
7462B:			
Sciotoville	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
7462C2:			
Sciotoville	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
7462C3:			
Sciotoville	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
7462D2:			
Sciotoville	Moderate Low strength	Poorly suited Slope Low strength	Moderately suited Low strength
7463B:			
Wheeling	Moderate Low strength	Moderately suited Low strength	Moderately suited Low strength
7463C2:			
Wheeling	Moderate Low strength	Moderately suited Low strength Slope	Moderately suited Low strength
7711A:			
Hatfield	Moderate Low strength	Moderately suited Wetness Low strength	Moderately suited Low strength
7711B:			
Hatfield	Moderate Low strength	Moderately suited Wetness Low strength	Moderately suited Low strength
7711B2:			
Hatfield	Moderate Low strength	Moderately suited Wetness Low strength	Moderately suited Low strength
8071A:			
Darwin	Severe Flooding Low strength Stickiness/slope	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index	Moderately suited Low strength Stickiness; high plasticity index
8072A:			
Sharon	Moderate Flooding Low strength	Moderately suited Flooding Low strength	Moderately suited Low strength

Table 10.—Forestland Management, Part I—Continued

Map symbol and soil name	Construction limitations for haul roads and log landings	Suitability of log landings	Harvest equipment operability for logging areas
	Rating class and limiting features	Rating class and limiting features	Rating class and limiting features
8108A:			
Bonnie	Severe Flooding Low strength	Poorly suited Ponding Flooding Wetness Low strength	Moderately suited Low strength
8180A:			
Dupo	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
8331A:			
Haymond	Moderate Flooding Low strength	Moderately suited Flooding Low strength	Moderately suited Low strength
8333A:			
Wakeland	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
8382A:			
Belknap	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
8420A:			
Piopolis	Severe Flooding Low strength	Poorly suited Ponding Flooding Wetness Low strength	Moderately suited Low strength
8426A:			
Karnak	Severe Flooding Low strength Stickiness/slope	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index	Moderately suited Low strength Stickiness; high plasticity index
8427B:			
Burnside	Moderate Flooding Low strength	Moderately suited Flooding Low strength	Moderately suited Low strength
8787A:			
Banlic	Severe Flooding Low strength	Poorly suited Flooding Wetness Low strength	Moderately suited Low strength
W:			
Water	Not rated	Not rated	Not rated

Table 10.—Forestland Management, Part II

Map symbol and soil name	Suitability of mechanized site preparation Rating class and limiting features	Limitation of prescribed burning Rating class and limiting features
79B:		
Menfro	Well suited	Slight
79C2:		
Menfro	Well suited	Slight
79C3:		
Menfro	Well suited	Slight
79D2:		
Menfro	Well suited	Slight
79D3:		
Menfro	Well suited	Slight
79E2:		
Menfro	Poorly suited Slope	Slight
79E3:		
Menfro	Poorly suited Slope	Slight
79F:		
Menfro	Poorly suited Slope	Slight
99G:		
Sandstone Rock Land	Not rated	Not rated
Limestone Rock Land	Not rated	Not rated
164A:		
Stoy	Well suited	Moderate Root restriction
164B:		
Stoy	Well suited	Moderate Root restriction
175A:		
Lamont	Well suited	Slight
175B:		
Lamont	Well suited	Slight
175C2:		
Lamont	Well suited	Slight
214B:		
Hosmer	Well suited	Moderate Root restriction
214C2:		
Hosmer	Well suited	Moderate Root restriction
214C3:		
Hosmer	Well suited	Moderate Root restriction

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Suitability of mechanized site preparation: Rating class and limiting features	Limitation of prescribed burning: Rating class and limiting features
214D2:		
Hosmer	Well suited	Moderate Root restriction
214D3:		
Hosmer	Well suited	Moderate Root restriction
301B:		
Grantsburg	Well suited	Slight
301C2:		
Grantsburg	Well suited	Moderate Root restriction
301C3:		
Grantsburg	Well suited	Moderate Root restriction
301D2:		
Grantsburg	Well suited	Moderate Root restriction
301D3:		
Grantsburg	Well suited	Moderate Root restriction
335B:		
Robbs	Well suited	Moderate Root restriction
339C:		
Wellston	Well suited	Slight
339D:		
Wellston	Well suited	Slight
339D2:		
Wellston	Well suited	Slight
339F:		
Wellston	Poorly suited Slope	Slight
340C2:		
Zanesville	Well suited	Moderate Root restriction
340C3:		
Zanesvillle	Well suited	Moderate Root restriction
340D:		
Zanesville	Well suited	Moderate Root restriction
340D2:		
Zanesville	Well suited	Moderate Root restriction

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Suitability of mechanized site preparation: Rating class and limiting features	Limitation of prescribed burning: Rating class and limiting features
340D3:		
Zanesville	Well suited	Moderate Root restriction
477C2:		
Winfield	Well suited	Slight
691D:		
Beasley	Well suited	Slight
691F:		
Beasley	Poorly suited Slope	Slight
793F:		
Berks	Poorly suited Slope Restrictive layer	Moderate Root restriction
Muskingum	Poorly suited Slope Restrictive layer	Moderate Root restriction
Weikert	Unsuited Restrictive layer Slope	Moderate Root restriction
793G:		
Berks	Unsuited Slope Restrictive layer	Moderate Slope Root restriction
Muskingum	Unsuited Slope Restrictive layer	Moderate Slope Root restriction
Weikert	Unsuited Slope Restrictive layer	Moderate Root restriction Slope
801B:		
Orthents, silty	Well suited	Slight
802D:		
Orthents, loamy	Well suited	Slight
802F:		
Orthents, loamy	Unsuited Slope	Moderate Slope
834F:		
Wellston	Poorly suited Slope	Slight
Westmore	Poorly suited Slope	Slight
864:		
Pits, quarries	Not rated	Not rated

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Suitability of mechanized site preparation: Rating class and limiting features	Limitation of prescribed burning: Rating class and limiting features
865:		
Pits, gravel	Not rated	Not rated
940D2:		
Zanesville	Well suited	Moderate Root restriction
Westmore	Well suited	Slight
955F:		
Muskingum	Poorly suited Slope Restrictive layer	Moderate Root restriction
Berks	Poorly suited Slope Restrictive layer	Moderate Root restriction
955G:		
Muskingum	Unsuited Slope Restrictive layer	Moderate Slope Root restriction
Berks	Unsuited Slope Restrictive layer	Moderate Slope Root restriction
977F:		
Wellston	Poorly suited Slope	Slight
Neotoma	Poorly suited Slope Rock fragments	Slight
986D:		
Wellston	Well suited	Slight
Berks	Poorly suited Restrictive layer	Moderate Root restriction
986D2:		
Wellston	Well suited	Slight
Berks	Poorly suited Restrictive layer	Moderate Root restriction
986D3:		
Wellston	Well suited	Slight
Berks	Poorly suited Restrictive layer	Moderate Root restriction
986F:		
Wellston	Poorly suited Slope	Slight
Berks	Poorly suited Slope Restrictive layer	Moderate Root restriction

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Suitability of mechanized site preparation: Rating class and limiting features	Limitation of prescribed burning: Rating class and limiting features
1334A:		
Birds	Unsuited Wetness	Slight
1843A:		
Bonnie	Unsuited Wetness	Slight
Petrolia	Unsuited Wetness	Slight
1846A:		
Karnak	Unsuited Wetness	Slight
Cape	Unsuited Wetness	Slight
3071A:		
Darwin	Well suited	Slight
3108A:		
Bonnie	Well suited	Slight
3180A:		
Dupo	Well suited	Moderate Root restriction
3288A:		
Petrolia	Well suited	Slight
3331A:		
Haymond	Well suited	Slight
3333A:		
Wakeland	Well suited	Slight
3334A:		
Birds	Well suited	Slight
3382A:		
Belknap	Well suited	Slight
3420A:		
Piopolis	Well suited	Slight
3426A:		
Karnak	Well suited	Slight
7460A:		
Ginat	Well suited	Slight
7462A:		
Sciotoville	Well suited	Slight
7462B:		
Sciotoville	Well suited	Slight
7462C2:		
Sciotoville	Well suited	Slight

Table 10.—Forestland Management, Part II—Continued

Map symbol and soil name	Suitability of mechanized site preparation	Limitation of prescribed burning
	Rating class and limiting features	Rating class and limiting features
7462C3:		
Sciotoville	Well suited	Slight
7462D2:		
Sciotoville	Well suited	Slight
7463B:		
Wheeling	Well suited	Slight
7463C2:		
Wheeling	Well suited	Slight
7711A:		
Hatfield	Well suited	Slight
7711B:		
Hatfield	Well suited	Slight
7711B2:		
Hatfield	Well suited	Slight
8071A:		
Darwin	Well suited	Slight
8072A:		
Sharon	Well suited	Slight
8108A:		
Bonnie	Well suited	Slight
8180A:		
Dupo	Well suited	Moderate Root restriction
8331A:		
Haymond	Well suited	Slight
8333A:		
Wakeland	Well suited	Slight
8382A:		
Belknap	Well suited	Slight
8420A:		
Piopolis	Well suited	Slight
8426A:		
Karnak	Well suited	Slight
8427B:		
Burnside	Well suited	Slight
8787A:		
Banlic	Well suited	Moderate Root restriction
W:		
Water	Not rated	Not rated

Table 10.—Forestland Management, Part III

Map symbol and soil name	Erosion hazard on roads and trails: Rating and limiting features	Suitability for roads (natural surface): Rating and limiting features
79B:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength
79C2:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength Slope
79C3:		
Menfro	Moderate Slope/erodibility	Moderately suited Low strength Slope
79D2:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
79D3:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
79E2:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
79E3:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
79F:		
Menfro	Severe Slope/erodibility	Poorly suited Slope Low strength
99G:		
Sandstone Rock Land	Not rated	Not rated
Limestone Rock Land	Not rated	Not rated
164A:		
Stoy	Slight	Moderately suited Low strength
164B:		
Stoy	Moderate Slope/erodibility	Moderately suited Low strength
175A:		
Lamont	Slight	Well suited
175B:		
Lamont	Slight	Well suited

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails: Rating and limiting features	Suitability for roads (natural surface): Rating and limiting features
175C2:		
Lamont	Moderate Slope/erodibility	Moderately suited Slope
214B:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength
214C2:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength Slope
214C3:		
Hosmer	Moderate Slope/erodibility	Moderately suited Low strength Slope
214D2:		
Hosmer	Severe Slope/erodibility	Poorly suited Slope Low strength
214D3:		
Hosmer	Severe Slope/erodibility	Poorly suited Slope Low strength
301B:		
Grantsburg	Moderate Slope/erodibility	Moderately suited Low strength
301C2:		
Grantsburg	Moderate Slope/erodibility	Moderately suited Low strength Slope
301C3:		
Grantsburg	Moderate Slope/erodibility	Moderately suited Low strength Slope
301D2:		
Grantsburg	Severe Slope/erodibility	Poorly suited Slope Low strength
301D3:		
Grantsburg	Severe Slope/erodibility	Poorly suited Slope Low strength
335B:		
Robbs	Moderate Slope/erodibility	Moderately suited Low strength
339C:		
Wellston	Moderate Slope/erodibility	Moderately suited Low strength Slope

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
339D:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
339D2:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
339F:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
340C2:		
Zanesville	Moderate Slope/erodibility	Moderately suited Low strength Slope
340C3:		
Zanesville	Moderate Slope/erodibility	Moderately suited Low strength Slope
340D:		
Zanesville	Severe Slope/erodibility	Poorly suited Slope Low strength
340D2:		
Zanesville	Severe Slope/erodibility	Poorly suited Slope Low strength
340D3:		
Zanesville	Severe Slope/erodibility	Poorly suited Slope Low strength
477C2:		
Winfield	Moderate Slope/erodibility	Moderately suited Low strength Slope
691D:		
Beasley	Severe Slope/erodibility	Poorly suited Slope Low strength
691F:		
Beasley	Severe Slope/erodibility	Poorly suited Slope Low strength
793F:		
Berks	Severe Slope/erodibility	Poorly suited Slope

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails: Rating and limiting features	Suitability for roads (natural surface): Rating and limiting features
793F:		
Muskingum	Severe Slope/erodibility	Poorly suited Slope Low strength
Weikert	Severe Slope/erodibility	Poorly suited Slope
793G:		
Berks	Severe Slope/erodibility	Poorly suited Slope
Muskingum	Severe Slope/erodibility	Poorly suited Slope Low strength
Weikert	Severe Slope/erodibility	Poorly suited Slope
801B:		
Orthents, silty	Moderate Slope/erodibility	Moderately suited Low strength
802D:		
Orthents, loamy	Severe Slope/erodibility	Moderately suited Slope Low strength
802F:		
Orthents, loamy	Severe Slope/erodibility	Poorly suited Slope Low strength
834F:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Westmore	Severe Slope/erodibility	Poorly suited Slope Low strength
864:		
Pits, quarries	Not rated	Not rated
865:		
Pits, gravel	Not rated	Not rated
940D2:		
Zanesville	Severe Slope/erodibility	Poorly suited Slope Low strength
Westmore	Severe Slope/erodibility	Poorly suited Slope Low strength

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails Rating and limiting features	Suitability for roads (natural surface) Rating and limiting features
955F:		
Muskingum	Severe Slope/erodibility	Poorly suited Slope Low strength
Berks	Severe Slope/erodibility	Poorly suited Slope
955G:		
Muskingum	Severe Slope/erodibility	Poorly suited Slope Low strength
Berks	Severe Slope/erodibility	Poorly suited Slope
977F:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Neotoma	Severe Slope/erodibility	Poorly suited Slope Low strength
986D:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Berks	Moderate Slope/erodibility	Poorly suited Slope
986D2:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Berks	Moderate Slope/erodibility	Poorly suited Slope
986D3:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Berks	Moderate Slope/erodibility	Poorly suited Slope
986F:		
Wellston	Severe Slope/erodibility	Poorly suited Slope Low strength
Berks	Severe Slope/erodibility	Poorly suited Slope

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails Rating and limiting features	Suitability for roads (natural surface) Rating and limiting features
1334A:		
Birds	Slight	Poorly suited Ponding Flooding Wetness Low strength
1843A:		
Bonnie	Slight	Poorly suited Ponding Flooding Wetness Low strength
Petrolia	Slight	Poorly suited Ponding Flooding Wetness Low strength
1846A:		
Karnak	Slight	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index
Cape	Slight	Poorly suited Ponding Flooding Wetness Low strength
3071A:		
Darwin	Slight	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index
3108A:		
Bonnie	Slight	Poorly suited Ponding Flooding Wetness Low strength
3180A:		
Dupo	Slight	Poorly suited Flooding Wetness Low strength

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails: Rating and limiting features	Suitability for roads (natural surface): Rating and limiting features
3288A:		
Petrolia	Slight	Poorly suited Ponding Flooding Wetness Low strength
3331A:		
Haymond	Slight	Poorly suited Flooding Low strength
3333A:		
Wakeland	Slight	Poorly suited Flooding Wetness Low strength
3334A:		
Birds	Slight	Poorly suited Ponding Flooding Wetness Low strength
3382A:		
Belknap	Slight	Poorly suited Flooding Wetness Low strength
3420A:		
Piopolis	Slight	Poorly suited Ponding Flooding Wetness Low strength
3426A:		
Karnak	Slight	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index
7460A:		
Ginat	Slight	Poorly suited Ponding Wetness Low strength
7462A:		
Sciotoville	Slight	Moderately suited Low strength
7462B:		
Sciotoville	Moderate Slope/erodibility	Moderately suited Low strength

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails	Suitability for roads (natural surface)
	Rating and limiting features	Rating and limiting features
7462C2:		
Sciotoville	Moderate Slope/erodibility	Moderately suited Low strength Slope
7462C3:		
Sciotoville	Moderate Slope/erodibility	Moderately suited Low strength Slope
7462D2:		
Sciotoville	Severe Slope/erodibility	Poorly suited Slope Low strength
7463B:		
Wheeling	Moderate Slope/erodibility	Moderately suited Low strength
7463C2:		
Wheeling	Moderate Slope/erodibility	Moderately suited Low strength Slope
7711A:		
Hatfield	Slight	Moderately suited Wetness Low strength
7711B:		
Hatfield	Moderate Slope/erodibility	Moderately suited Wetness Low strength
7711B2:		
Hatfield	Moderate Slope/erodibility	Moderately suited Wetness Low strength
8071A:		
Darwin	Slight	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index
8072A:		
Sharon	Slight	Moderately suited Flooding Low strength
8108A:		
Bonnie	Slight	Poorly suited Ponding Flooding Wetness Low strength

Table 10.—Forestland Management, Part III—Continued

Map symbol and soil name	Erosion hazard on roads and trails Rating and limiting features	Suitability for roads (natural surface) Rating and limiting features
8180A:		
Dupo	Slight	Poorly suited Flooding Wetness Low strength
8331A:		
Haymond	Slight	Moderately suited Flooding Low strength
8333A:		
Wakeland	Slight	Poorly suited Flooding Wetness Low strength
8382A:		
Belknap	Slight	Poorly suited Flooding Wetness Low strength
8420A:		
Piopolis	Slight	Poorly suited Ponding Flooding Wetness Low strength
8426A:		
Karnak	Slight	Poorly suited Ponding Flooding Wetness Low strength Stickiness; high plasticity index
8427B:		
Burnside	Slight	Moderately suited Flooding Low strength
8787A:		
Banlic	Slight	Poorly suited Flooding Wetness Low strength
W:		
Water	Not rated	Not rated

Table 11.—Forestland Productivity

Map symbol and soil name	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
79B:			
Menfro	White oak	82	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	84	
79C2:			
Menfro	White oak	75	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	77	
79C3:			
Menfro	White oak	69	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	71	
79D2:			
Menfro	White oak	70	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	71	
79D3:			
Menfro	White oak	62	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	64	
79E2:			
Menfro	White oak	61	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	62	
79E3:			
Menfro	White oak	55	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	56	
79F:			
Menfro	White oak	53	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	54	
99G.			
Sandstone and Limestone Rock Land			
164A:			
Stoy	Eastern cottonwood	110	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, hickory, pin oak, white oak, yellow-poplar.
	Northern red oak	71	
	Pin oak	85	
	White oak	70	
	Yellow-poplar	90	
164B:			
Stoy	Eastern cottonwood	109	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, hickory, pin oak, white oak, yellow-poplar.
	Northern red oak	70	
	Pin oak	84	
	White oak	69	
	Yellow-poplar	89	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
175A:			
Lamont	White oak	77	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	71	
175B:			
Lamont	White oak	76	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	70	
175C2:			
Lamont	White oak	71	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	67	
214B:			
Hosmer	White oak	72	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	75	
214C2:			
Hosmer	White oak	64	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	67	
214C3:			
Hosmer	Northern red oak	55	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	White oak	53	
214D2:			
Hosmer	White oak	58	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	61	
214D3:			
Hosmer	White oak	48	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	49	
301B:			
Grantsburg	White oak	70	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	71	
301C2:			
Grantsburg	White oak	63	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	65	
301C3:			
Grantsburg	White oak	52	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	53	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity		Suggested trees to plant
	Common trees	Site index	
301D2:			
Grantsburg	White oak	57	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	59	
301D3:			
Grantsburg	White oak	46	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	48	
335B:			
Robbs	White oak	68	Bur oak, cherrybark oak, common persimmon, hickory, pin oak, southern red oak, white oak, yellow-poplar.
	Northern red oak	69	
339C:			
Wellston	White oak	67	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	68	
339D:			
Wellston	White oak	62	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	63	
339D2:			
Wellston	White oak	56	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	58	
339F:			
Wellston	White oak	43	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	45	
340C2:			
Zanesville	White oak	64	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	62	
340C3:			
Zanesville	White oak	53	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	51	
340D:			
Zanesville	White oak	66	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	64	
340D2:			
Zanesville	White oak	58	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	57	
340D3:			
Zanesville	White oak	45	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	43	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
477C2:			
Winfield	White oak	71	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	74	
691D:			
Beasley	White oak	61	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	54	
691F:			
Beasley	White oak	46	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	41	
793F:			
Berks	White oak	27	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	28	
Muskingum	White oak	27	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	28	
Weikert	White oak	25	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	27	
793G:			
Berks	White oak	27	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	28	
Muskingum	White oak	27	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	28	
Weikert	White oak	25	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	27	
801B:			
Orthents, silty	---	---	Black locust, black walnut, northern red oak, tuliptree, white oak.
802D:			
Orthents, loamy	---	---	Black walnut, northern red oak, tuliptree, white oak.

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity		Suggested trees to plant
	Common trees	Site index	
802F:			
Orthents, loamy	---	---	Black locust, eastern white pine, hickory, northern red oak, pin oak, white oak.
834F:			
Wellston	White oak	43	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	45	
Westmore	White oak	56	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	55	
864.			
Pits, quarries			
865.			
Pits, gravel			
940D2:			
Zanesville	White oak	58	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	57	
Westmore	White oak	69	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	68	
955F:			
Muskingum	White oak	41	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	48	
Berks	White oak	39	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	41	
955G:			
Muskingum	White oak	69	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	75	
Berks	White oak	75	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	76	
977F:			
Wellston	White oak	43	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	45	
Neotoma	White oak	47	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	45	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity		Suggested trees to plant
	Common trees	Site index	
986D:			
Wellston	White oak	63	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	63	
Berks	White oak	53	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	53	
986D2:			
Wellston	White oak	56	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	58	
Berks	White oak	50	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	52	
986D3:			
Wellston	White oak	65	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	61	
Berks	White oak	45	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	47	
986F:			
Wellston	White oak	43	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	45	
Berks	White oak	36	Black oak, blackjack oak, chinkapin oak, hickory, northern red oak, post oak, southern red oak, white oak.
	Northern red oak	38	
1334A:			
Birds	Eastern cottonwood	102	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum, water tupelo.
	Pin oak	92	
1843A:			
Bonnie	Eastern cottonwood	88	Baldcypress, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum, water tupelo.
	Pin oak	80	
Petrolia	Eastern cottonwood	88	Baldcypress, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum, water tupelo.
	Pin oak	80	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Potential productivity: Site index	Suggested trees to plant
1846A:			
Karnak	Eastern cottonwood	88	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum, water tupelo.
	Pin oak	80	
Cape	Eastern cottonwood	88	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum, water tupelo.
	Pin oak	80	
3071A:			
Darwin	Eastern cottonwood	88	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	80	
3108A:			
Bonnie	Eastern cottonwood	100	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	90	
3180A:			
Dupo	Eastern cottonwood	102	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, pin oak, red maple, swamp white oak, yellow-poplar.
	Pin oak	92	
3288A:			
Petrolia	Eastern cottonwood	97	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	87	
3331A:			
Haymond	Eastern cottonwood	110	Black walnut, cherrybark oak, common persimmon, eastern cottonwood, pecan, shellbark hickory, swamp white oak.
	Pin oak	99	
3333A:			
Wakeland	Eastern cottonwood	99	Cherrybark oak, common persimmon, eastern cottonwood, pecan, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	90	
3334A:			
Birds	Eastern cottonwood	99	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	90	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity: Common trees	Site index	Suggested trees to plant
3382A:			
Belknap	Eastern cottonwood	102	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, pin oak, red maple, shellbark hickory, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	92	
3420A:			
Piopolis	Eastern cottonwood	95	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	86	
3426A:			
Karnak	Eastern cottonwood	84	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	76	
7460A:			
Ginat	Eastern cottonwood	94	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	85	
7462A:			
Sciotoville	White oak	79	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	74	
7462B:			
Sciotoville	White oak	78	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	73	
7462C2:			
Sciotoville	White oak	73	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	68	
7462C3:			
Sciotoville	White oak	66	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	62	
7462D2:			
Sciotoville	White oak	66	Black oak, chinkapin oak, hickory, northern red oak, southern red oak, white oak.
	Northern red oak	62	
7463B:			
Wheeling	White oak	75	Black oak, black walnut, chinkapin oak, hickory, northern red oak, pecan, southern red oak, white oak.
	Northern red oak	80	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity		Suggested trees to plant
	Common trees	Site index	
7463C2:			
Wheeling	White oak	70	Black oak, black walnut, chinkapin oak, hickory, northern red oak, pecan, southern red oak, white oak.
	Northern red oak	75	
7711A:			
Hatfield	White oak	74	American sycamore, cherrybark oak, common persimmon, pin oak, red maple, yellow-poplar.
	Northern red oak	71	
	Eastern cottonwood	71	
	Pin oak	85	
7711B:			
Hatfield	White oak	73	American sycamore, cherrybark oak, common persimmon, pin oak, red maple, yellow-poplar.
	Northern red oak	70	
	Eastern cottonwood	70	
	Pin oak	84	
7711B2:			
Hatfield	White oak	70	American sycamore, cherrybark oak, common persimmon, pin oak, red maple, yellow-poplar.
	Northern red oak	67	
	Eastern cottonwood	67	
	Pin oak	81	
8071A:			
Darwin	Eastern cottonwood	88	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	80	
8072A:			
Sharon	Eastern cottonwood	103	Black walnut, bur oak, cherrybark oak, common persimmon, hickory, pecan, white oak.
	Pin oak	93	
8108A:			
Bonnie	Eastern cottonwood	100	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	90	
8180A:			
Dupo	Eastern cottonwood	102	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, pin oak, red maple, swamp white oak, yellow-poplar.
	Pin oak	92	
8331A:			
Haymond	Eastern cottonwood	110	Black walnut, bur oak, cherrybark oak, common persimmon, hickory, pecan.
	Pin oak	99	

Table 11.—Forestland Productivity—Continued

Map symbol and soil name	Potential productivity		Suggested trees to plant
	Common trees	Site index	
8333A:			
Wakeland	Eastern cottonwood	99	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, pin oak, red maple, swamp white oak, sweetgum.
	Pin oak	90	
8382A:			
Belknap	Eastern cottonwood	102	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, pin oak, red maple, swamp white oak, sweetgum.
	Pin oak	92	
8420A:			
Piopolis	Eastern cottonwood	95	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	86	
8426A:			
Karnak	Eastern cottonwood	84	Baldcypress, eastern cottonwood, overcup oak, pin oak, red maple, swamp chestnut oak, swamp white oak, sweetgum.
	Pin oak	76	
8427B:			
Burnside	Eastern cottonwood	114	Bur oak, cherrybark oak, common persimmon, hickory, pin oak, white oak.
	Pin oak	102	
8787A:			
Banlic	Eastern cottonwood	93	Bur oak, cherrybark oak, common persimmon, eastern cottonwood, hickory, pin oak, red maple, swamp white oak, yellow-poplar.
	Pin oak	84	
W.			
Water			

Table 12.—Windbreaks and Environmental Plantings

(Absence of an entry indicates that trees generally do not grow to the given height)

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
79B:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79C2:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79C3:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79D2:					
Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
79D3: Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79E2: Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79E3: Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
79F: Menfro	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
99G. Sandstone and Limestone Rock Land					

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
164A:					
Stoy	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
164B:					
Stoy	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
175A:					
Lamont	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, green ash, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
175B:					
Lamont	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, green ash, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
175C2:					
Lamont	American hazelnut, black chokeberry, common winterberry, coralberry, gray dogwood, mapleleaf viburnum	American plum, American witchhazel, Arnold hawthorn, blackhaw, common chokecherry, common serviceberry, prairie crabapple	Douglas fir, arborvitae, black walnut, blackgum, blue spruce, bur oak, eastern redcedar, green ash, pecan	Norway spruce, common hackberry, pin oak, tuliptree	Carolina poplar, eastern white pine
214B:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
214C2:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
214C3:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
214D2:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
214D3:					
Hosmer	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
301B:					
Grantsburg	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
301C2:					
Grantsburg-------------	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
301C3:					
Grantsburg-------------	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
301D2:					
Grantsburg-------------	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
301D3:					
Grantsburg-------------	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
335B:					
Robbs	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
339C:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
339D:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
339D2:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
339F:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
340C2:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
340C3:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
340D:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
340D2:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
340D3:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
477C2:					
Winfield	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
691D:					
Beasley	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
691F:					
Beasley	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
793F:					
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
793F:					
Muskingum	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
Weikert	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
793G:					
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
Muskingum	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
Weikert	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
801B:					
Orthents, silty	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
802D:					
Orthents, loamy	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
802F:					
Orthents, loamy	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
834F:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Westmore	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
864.					
Pits, quarries					

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
865. Pits, gravel					
940D2:					
Zanesville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
Westmore	American cranberrybush, American hazelnut, black chokeberry, common chokecherry, common elderberry, common juniper, coralberry, mapleleaf viburnum, silky dogwood	American plum, bur oak, chinkapin oak, common serviceberry, eastern redcedar, nannyberry, prairie crabapple, roughleaf dogwood, smooth sumac	black oak, common hackberry, eastern white pine, green ash	Carolina poplar	---
955F:					
Muskingum	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
955G:					
Muskingum	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
955G:					
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
977F:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Neotoma	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
986D:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
986D2:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
986D3:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
986F:					
Wellston	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
986F:					
Berks	American plum, black chokeberry, blackhaw, common juniper, gray dogwood, mapleleaf viburnum	cockspur hawthorn, common serviceberry, eastern redcedar, nannyberry, prairie crabapple	bur oak, chinkapin oak, green ash, thornless honeylocust	---	---
1334A:					
Birds	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
1843A:					
Bonnie	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Petrolia	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
1846A:					
Karnak	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
Cape	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3071A:					
Darwin	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
3108A:					
Bonnie	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3180A:					
Dupo	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3288A:					
Petrolia	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3331A: Haymond	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
3333A: Wakeland	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3334A: Birds	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3382A: Belknap	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
3420A:					
Piopolis	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
3426A:					
Karnak	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7460A:					
Ginat	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of--				
	<8	8-15	16-25	26-35	>35
7462A:					
Sciotoville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
7462B:					
Sciotoville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
7462C2:					
Sciotoville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
7462C3:					
Sciotoville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
7462D2:					
Sciotoville	American cranberrybush, American hazelnut, black chokeberry, common juniper, coralberry, gray dogwood, mapleleaf viburnum, silky dogwood	American plum, American witchhazel, Washington hawthorn, blackhaw, common chokecherry, common serviceberry, nannyberry, prairie crabapple, roughleaf dogwood, staghorn sumac	Virginia pine, arborvitae, black oak, blackgum, bur oak, chinkapin oak, common hackberry, eastern redcedar, green ash	Norway spruce	Carolina poplar
7463B:					
Wheeling	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
7463C2:					
Wheeling	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
7711A:					
Hatfield	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7711B:					
Hatfield	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
7711B2:					
Hatfield	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8071A:					
Darwin	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
8072A:					
Sharon	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8108A:					
Bonnie	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8180A:					
Dupo	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8331A:					
Haymond	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
8333A: Wakeland	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8382A: Belknap	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8420A: Piopolis	American cranberrybush, American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak

Table 12.—Windbreaks and Environmental Plantings—Continued

Map symbol and soil name	Trees having predicted 20-year average height, in feet, of-- <8	8-15	16-25	26-35	>35
8426A:					
Karnak	American cranberrybush, black chokeberry, buttonbush, common elderberry, common ninebark, common winterberry, gray dogwood, highbush blueberry, northern spicebush, redosier dogwood, silky dogwood	cockspur hawthorn, hazel alder, nannyberry, roughleaf dogwood	arborvitae, blackgum, common hackberry, green hawthorn, northern white-cedar, shingle oak	green ash, red maple, river birch, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
8427B:					
Burnside	American hazelnut, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, coralberry, mapleleaf viburnum, redosier dogwood, silky dogwood	American plum, American witchhazel, blackhaw, common chokecherry, common serviceberry, prairie crabapple, roughleaf dogwood, smooth sumac, southern arrowwood	Washington hawthorn, arborvitae, blue spruce, common persimmon, eastern redcedar, nannyberry, pecan, white oak	Douglas fir, Norway spruce, black walnut, blackgum, common hackberry, green ash, northern red oak, pin oak, tuliptree	Carolina poplar, eastern cottonwood, eastern white pine
8787A:					
Banlic	American cranberrybush, Canada yew, black chokeberry, common elderberry, common juniper, common ninebark, common winterberry, northern spicebush, redosier dogwood, silky dogwood	blackhaw, cockspur hawthorn, common pawpaw, common serviceberry, prairie crabapple, roughleaf dogwood, rusty blackhaw, southern arrowwood, witchhazel	Austrian pine, Douglas fir, arborvitae, blue spruce, common persimmon, eastern redcedar, green hawthorn, nannyberry, pecan, shingle oak	Norway spruce, blackgum, common hackberry, green ash, red maple, swamp white oak, sweetgum	Carolina poplar, eastern cottonwood, pin oak
W.					
Water					

Table 13.—Recreational Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Playgrounds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B:							
Menfro	90	Not limited		Not limited		Somewhat limited	
						Slope	0.50
79C2:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
79C3:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
79D2:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
79D3:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
79E2:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
79E3:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
79F:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Depth to saturated zone	0.39
164B:							
Stoy	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Slow water movement	0.96
		Depth to saturated zone	0.39	Depth to saturated zone	0.19	Slope	0.50
						Depth to saturated zone	0.39

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
175A:							
Lamont	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.12	Too sandy	0.12	Too sandy	0.12
175B:							
Lamont	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.12	Too sandy	0.12	Slope	0.50
						Too sandy	0.12
175C2:							
Lamont	90	Somewhat limited		Somewhat limited		Very limited	
		Too sandy	0.12	Too sandy	0.12	Slope	1.00
		Slope	0.01	Slope	0.01	Too sandy	0.12
214B:							
Hosmer	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to cemented pan	0.65	Depth to cemented pan	0.65	Depth to cemented pan	0.64
						Slope	0.50
214C2:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.86	Depth to cemented pan	0.86	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to cemented pan	0.86
214C3:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.95	Depth to cemented pan	0.95	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to cemented pan	0.95
214D2:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Depth to cemented pan	0.86	Depth to cemented pan	0.86	Depth to cemented pan	0.86
214D3:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Depth to cemented pan	0.95	Depth to cemented pan	0.95	Depth to cemented pan	0.95
301B:							
Grantsburg	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.21	Slow water movement	0.21	Slope	0.50
		Depth to cemented pan	0.01	Depth to cemented pan	0.01	Slow water movement	0.21
						Depth to cemented pan	0.01
301C2:							
Grantsburg	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.21	Slow water movement	0.21	Slope	1.00
		Depth to cemented pan	0.10	Depth to cemented pan	0.10	Slow water movement	0.21
		Slope	0.01	Slope	0.01	Depth to cemented pan	0.10

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
301C3:							
Grantsburg----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.21	Slow water movement	0.21	Slope	1.00
		Depth to cemented pan	0.20	Depth to cemented pan	0.20	Slow water movement	0.21
		Slope	0.01	Slope	0.01	Depth to cemented pan	0.20
301D2:							
Grantsburg----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
		Depth to cemented pan	0.10	Depth to cemented pan	0.10	Depth to cemented pan	0.10
301D3:							
Grantsburg----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
		Depth to cemented pan	0.20	Depth to cemented pan	0.20	Depth to cemented pan	0.20
335B:							
Robbs---------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to cemented pan	0.80	Depth to cemented pan	0.80	Depth to cemented pan	0.79
		Depth to saturated zone	0.39	Slow water movement	0.21	Depth to saturated zone	0.39
		Slow water movement	0.21	Depth to saturated zone	0.19	Slow water movement	0.21
						Slope	0.12
339C:							
Wellston------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
339D:							
Wellston------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
339D2:							
Wellston------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
339F:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
340C2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
340C3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	0.01	Slope	0.01	Slope	1.00

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
340D:							
Zanesville----------	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.97	Depth to cemented pan	0.97	Slope	1.00
		Slope	0.96	Slope	0.96	Depth to cemented pan	0.97
340D2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
		Slope	0.96	Slope	0.96	Depth to cemented pan	1.00
340D3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
		Slope	0.96	Slope	0.96	Depth to cemented pan	1.00
477C2:							
Winfield------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
691D:							
Beasley-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
691F:							
Beasley-------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
793F:							
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.65
Muskingum-----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.39
						Depth to bedrock	0.16
Weikert-------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.92	Gravel content	0.92	Depth to bedrock	1.00
793G:							
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.65
Muskingum-----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.39
						Depth to bedrock	0.16

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
793G:							
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	0.92	Gravel content	0.92	Depth to bedrock	1.00
801B:							
Orthents, silty	90	Not limited		Not limited		Somewhat limited	
						Slope	0.12
802D:							
Orthents, loamy	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Slope	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
802F:							
Orthents, loamy	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
834F:							
Wellston	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Westmore	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Slow water movement	0.43	Slow water movement	0.43	Slow water movement	0.43
864:							
Pits, quarries	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville	45	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	1.00
		Slope	0.96	Slope	0.96	Depth to cemented pan	1.00
Westmore	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Slow water movement	0.43	Slow water movement	0.43	Slow water movement	0.43
955F:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.39
						Depth to bedrock	0.16
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.65

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
955G:							
Muskingum-----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Gravel content	0.39
						Depth to bedrock	0.16
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.65
977F:							
Wellston------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Neotoma-------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.08	Gravel content	0.08	Gravel content	1.00
986D:							
Wellston------------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
Berks---------------	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.65
986D2:							
Wellston------------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
Berks---------------	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.84
986D3:							
Wellston------------	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
Berks---------------	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.95
986F:							
Wellston------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.39	Gravel content	0.39	Gravel content	1.00
						Depth to bedrock	0.65

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value	Playgrounds: Rating class and limiting features	Playgrounds: Value
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
1843A:							
Bonnie	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
Petrolia	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
1846A:							
Karnak	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Too clayey	1.00	Ponding	1.00
		Too clayey	1.00	Slow water movement	0.99	Too clayey	1.00
		Slow water movement	0.99	Flooding	0.40	Slow water movement	0.99
Cape	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	0.40	Slow water movement	1.00
3071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	1.00	Ponding	1.00
		Slow water movement	1.00	Too clayey	1.00	Slow water movement	1.00
		Too clayey	1.00	Flooding	0.40	Too clayey	1.00

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
3108A:							
Bonnie	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
3180A:							
Dupo	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Slow water movement	0.96	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	0.95	Flooding	1.00
		Slow water movement	0.96	Flooding	0.40	Slow water movement	0.96
3288A:							
Petrolia	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
3331A:							
Haymond	90	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Flooding	0.40	Flooding	1.00
3333A:							
Wakeland	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
3334A:							
Birds	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Flooding	0.40	Ponding	1.00
		Slow water movement	0.21	Slow water movement	0.21	Slow water movement	0.21
3382A:							
Belknap	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	1.00
3420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Ponding	1.00	Slow water movement	0.96	Ponding	1.00
		Slow water movement	0.96	Flooding	0.40	Slow water movement	0.96

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
3426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Depth to	1.00	Ponding	1.00	Depth to	1.00
		saturated zone		Depth to	1.00	saturated zone	
		Flooding	1.00	saturated zone		Flooding	1.00
		Ponding	1.00	Too clayey	1.00	Ponding	1.00
		Too clayey	1.00	Slow water	0.99	Too clayey	1.00
		Slow water	0.99	movement		Slow water	0.99
		movement		Flooding	0.40	movement	
7460A:							
Ginat	90	Very limited		Very limited		Very limited	
		Depth to	1.00	Ponding	1.00	Depth to	1.00
		saturated zone		Depth to	1.00	saturated zone	
		Flooding	1.00	saturated zone		Ponding	1.00
		Ponding	1.00	Slow water	1.00	Slow water	1.00
		Slow water	1.00	movement		movement	
		movement					
7462A:							
Sciotoville	95	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Slow water	0.43	Slow water	0.43
		Slow water	0.43	movement		movement	
		movement		Depth to	0.03	Depth to	0.07
		Depth to	0.07	saturated zone		saturated zone	
		saturated zone					
7462B:							
Sciotoville	95	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Slow water	0.43	Slope	0.50
		Slow water	0.43	movement		Slow water	0.43
		movement		Depth to	0.03	movement	
		Depth to	0.07	saturated zone		Depth to	0.07
		saturated zone				saturated zone	
7462C2:							
Sciotoville	95	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Slow water	0.43	Slope	1.00
		Slow water	0.43	movement		Slow water	0.43
		movement		Depth to	0.03	movement	
		Depth to	0.07	saturated zone		Depth to	0.07
		saturated zone		Slope	0.01	saturated zone	
		Slope	0.01				
7462C3:							
Sciotoville	95	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Slow water	0.43	Slope	1.00
		Slow water	0.43	movement		Slow water	0.43
		movement		Depth to	0.03	movement	
		Depth to	0.07	saturated zone		Depth to	0.07
		saturated zone		Slope	0.01	saturated zone	
		Slope	0.01				
7462D2:							
Sciotoville	95	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Slope	0.96	Slope	1.00
		Slope	0.96	Slow water	0.43	Slow water	0.43
		Slow water	0.43	movement		movement	
		movement		Depth to	0.03	Depth to	0.07
		Depth to	0.07	saturated zone		saturated zone	
		saturated zone					

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
7463B:							
Wheeling------------	95	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Slope	0.50
7463C2:							
Wheeling------------	95	Very limited		Somewhat limited		Very limited	
		Flooding	1.00	Slope	0.01	Slope	1.00
		Slope	0.01				
7711A:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00				
7711B:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00			Slope	0.50
7711B2:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00			Slope	0.50
8071A:							
Darwin--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	1.00	Slow water movement	1.00
		Slow water movement	1.00	Too clayey	1.00	Too clayey	1.00
		Too clayey	1.00			Flooding	0.60
8072A:							
Sharon--------------	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
8108A:							
Bonnie--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.21	Flooding	0.60
		Slow water movement	0.21			Slow water movement	0.21

Table 13.—Recreational Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Camp areas: Rating class and limiting features	Value	Picnic areas: Rating class and limiting features	Value	Playgrounds: Rating class and limiting features	Value
8180A:							
Dupo	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Slow water movement	0.96	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	0.95	Slow water movement	0.96
		Slow water movement	0.96			Flooding	0.60
8331A:							
Haymond	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
8333A:							
Wakeland	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
8382A:							
Belknap	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Flooding	1.00			Flooding	0.60
8420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Slow water movement	0.96	Slow water movement	0.96
		Slow water movement	0.96			Flooding	0.60
8426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	1.00	Too clayey	1.00
		Too clayey	1.00	Slow water movement	0.99	Slow water movement	0.99
		Slow water movement	0.99			Flooding	0.60
8427B:							
Burnside	90	Very limited		Not limited		Somewhat limited	
		Flooding	1.00			Flooding	0.60
						Slope	0.12
8787A:							
Banlic	90	Very limited		Somewhat limited		Very limited	
		Depth to saturated zone	1.00	Slow water movement	0.96	Depth to saturated zone	1.00
		Flooding	1.00	Depth to saturated zone	0.94	Slow water movement	0.96
		Slow water movement	0.96			Flooding	0.60
W:							
Water	100	Not rated		Not rated		Not rated	

Table 13.—Recreational Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B:							
Menfro	90	Not limited		Not limited		Not limited	
79C2:							
Menfro	90	Not limited		Not limited		Somewhat limited	
						Slope	0.01
79C3:							
Menfro	90	Not limited		Not limited		Somewhat limited	
						Slope	0.01
79D2:							
Menfro	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
79D3:							
Menfro	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
79E2:							
Menfro	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.82				
79E3:							
Menfro	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	0.82				
79F:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Slope	1.00
		Water erosion	1.00	Slope	0.22		
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
164B:							
Stoy	90	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.19
175A:							
Lamont	90	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.12	Too sandy	0.12		

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails		Off-road motorcycle trails		Golf fairways	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
175B:							
Lamont	90	Somewhat limited		Somewhat limited		Not limited	
		Too sandy	0.12	Too sandy	0.12		
175C2:							
Lamont	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.12	Too sandy	0.12	Slope	0.01
214B:							
Hosmer	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.64
214C2:							
Hosmer	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.86
						Slope	0.01
214C3:							
Hosmer	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.95
						Slope	0.01
214D2:							
Hosmer	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
						Depth to cemented pan	0.86
214D3:							
Hosmer	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
						Depth to cemented pan	0.95
301B:							
Grantsburg	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.01
301C2:							
Grantsburg	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.10
						Slope	0.01
301C3:							
Grantsburg	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.20
						Slope	0.01
301D2:							
Grantsburg	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
						Depth to cemented pan	0.10

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
301D3:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
						Depth to cemented pan	0.20
335B:							
Robbs---------------	90	Not limited		Not limited		Somewhat limited	
						Depth to cemented pan	0.79
						Depth to saturated zone	0.19
339C:							
Wellston------------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.01
339D:							
Wellston------------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
339D2:							
Wellston------------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
339F:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.04		
340C2:							
Zanesville----------	90	Not limited		Not limited		Very limited	
						Depth to cemented pan	1.00
						Droughty	0.01
						Slope	0.01
340C3:							
Zanesville----------	90	Not limited		Not limited		Very limited	
						Depth to cemented pan	1.00
						Droughty	0.16
						Slope	0.01
340D:							
Zanesville----------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	0.97
						Slope	0.96
340D2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	1.00
						Slope	0.96
						Droughty	0.01

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
340D3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	1.00
						Slope	0.96
						Droughty	0.16
477C2:							
Winfield-----------	90	Not limited		Not limited		Somewhat limited	
						Slope	0.01
691D:							
Beasley------------	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
691F:							
Beasley------------	90	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.04		
793F:							
Berks--------------	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Droughty	0.99
						Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
Muskingum----------	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Depth to bedrock	0.16
						Large stones content	0.01
Weikert------------	15	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Droughty	1.00
						Depth to bedrock	1.00
						Gravel content	0.92
						Large stones content	0.01
793G:							
Berks--------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.99
						Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
Muskingum----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
						Large stones content	0.01

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
793G:							
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	1.00
						Depth to bedrock	1.00
						Gravel content	0.92
						Large stones content	0.01
801B:							
Orthents, silty	90	Not limited		Not limited		Not limited	
802D:							
Orthents, loamy	90	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.37
802F:							
Orthents, loamy	85	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	1.00		
834F:							
Wellston	55	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.04		
Westmore	35	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.04		
864:							
Pits, quarries	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville	45	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Depth to cemented pan	1.00
						Slope	0.96
						Droughty	0.01
Westmore	45	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
955F:							
Muskingum	55	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Depth to bedrock	0.16
						Large stones content	0.01
Berks	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Droughty	0.99
						Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
955G:							
Muskingum-----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Depth to bedrock	0.16
						Large stones content	0.01
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
						Droughty	0.99
						Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
977F:							
Wellston------------	45	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.04		
Neotoma-------------	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Large stones content	0.68
						Gravel content	0.08
986D:							
Wellston------------	50	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
Berks---------------	40	Not limited		Not limited		Somewhat limited	
						Droughty	0.99
						Slope	0.96
						Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
986D2:							
Wellston------------	50	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
Berks---------------	40	Not limited		Not limited		Very limited	
						Droughty	1.00
						Slope	0.96
						Depth to bedrock	0.84
						Gravel content	0.39
						Large stones content	0.32
986D3:							
Wellston------------	50	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
Berks---------------	40	Not limited		Not limited		Very limited	
						Droughty	1.00
						Slope	0.96
						Depth to bedrock	0.95
						Gravel content	0.39
						Large stones content	0.32

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
986F:							
Wellston	50	Very limited		Very limited		Very limited	
		Water erosion	1.00	Water erosion	1.00	Slope	1.00
		Slope	1.00	Slope	0.04		
Berks	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Slope	0.04	Slope	1.00
						Droughty	0.99
						Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
1843A:							
Bonnie	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
Petrolia	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
1846A:							
Karnak	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Too clayey	1.00	Too clayey	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
Cape	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Too clayey	1.00	Too clayey	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
3108A:							
Bonnie	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
3180A:							
Dupo	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.89	Depth to saturated zone	0.89	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.95
3288A:							
Petrolia	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3331A:							
Haymond	90	Somewhat limited		Somewhat limited		Very limited	
		Flooding	0.40	Flooding	0.40	Flooding	1.00
3333A:							
Wakeland	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.94
3334A:							
Birds	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3382A:							
Belknap	90	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	0.94
3420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Flooding	0.40	Flooding	0.40	Depth to saturated zone	1.00
3426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Flooding	1.00
		Too clayey	1.00	Too clayey	1.00	Depth to saturated zone	1.00
		Flooding	0.40	Flooding	0.40	Too clayey	1.00
7460A:							
Ginat	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
7462A:							
Sciotoville---------	95	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
7462B:							
Sciotoville---------	95	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
7462C2:							
Sciotoville---------	95	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
						Slope	0.01
7462C3:							
Sciotoville---------	95	Not limited		Not limited		Somewhat limited	
						Depth to saturated zone	0.03
						Slope	0.01
7462D2:							
Sciotoville---------	95	Very limited		Very limited		Somewhat limited	
		Water erosion	1.00	Water erosion	1.00	Slope	0.96
						Depth to saturated zone	0.03
7463B:							
Wheeling------------	95	Not limited		Not limited		Not limited	
7463C2:							
Wheeling------------	95	Not limited		Not limited		Somewhat limited	
						Slope	0.01
7711A:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
7711B:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
7711B2:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8071A:							
Darwin--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
						Flooding	0.60
8072A:							
Sharon--------------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60

Table 13.—Recreational Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Paths and trails: Rating class and limiting features	Value	Off-road motorcycle trails: Rating class and limiting features	Value	Golf fairways: Rating class and limiting features	Value
8108A:							
Bonnie----------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
						Flooding	0.60
8180A:							
Dupo------------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.89	Depth to saturated zone	0.89	Depth to saturated zone	0.95
						Flooding	0.60
8331A:							
Haymond---------------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
8333A:							
Wakeland--------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
						Flooding	0.60
8382A:							
Belknap---------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
						Flooding	0.60
8420A:							
Piopolis--------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
						Flooding	0.60
8426A:							
Karnak----------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Too clayey	1.00	Too clayey	1.00	Too clayey	1.00
						Flooding	0.60
8427B:							
Burnside--------------	90	Not limited		Not limited		Somewhat limited	
						Flooding	0.60
						Large stones content	0.01
8787A:							
Banlic----------------	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.86	Depth to saturated zone	0.86	Depth to saturated zone	0.94
						Flooding	0.60
W:							
Water-----------------	100	Not rated		Not rated		Not rated	

Table 14.—Wildlife Habitat

(See text for definitions of terms used in this table. Absence of an entry indicates that no rating is applicable)

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba-ceous plants	Hardwood trees	Conif-erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
79B:										
Menfro	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
79C2:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79C3:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79D2:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79D3:										
Menfro	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
79E2:										
Menfro	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
79E3:										
Menfro	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
79F:										
Menfro	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
99G. Sandstone and Limestone Rock Land										
164A:										
Stoy	Good	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
164B:										
Stoy	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
175A:										
Lamont------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
175B:										
Lamont------------	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
175C2:										
Lamont------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
214B:										
Hosmer------------	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
214C2:										
Hosmer------------	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
214C3:										
Hosmer------------	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
214D2:										
Hosmer------------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
214D3:										
Hosmer------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
301B:										
Grantsburg--------	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
301C2:										
Grantsburg--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
301C3:										
Grantsburg--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
301D2:										
Grantsburg--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
301D3:										
Grantsburg--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
335B:										
Robbs-------------	Fair	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
339C:										
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
339D:										
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
339D2:										
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
339F:										
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
340C2:										
Zanesville--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
340C3:										
Zanesville--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
340D:										
Zanesville--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
340D2:										
Zanesville--------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
340D3:										
Zanesville--------	Poor	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
477C2:										
Winfield----------	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
691D:										
Beasley-----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
691F:										
Beasley-----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
793F:										
Berks-------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Muskingum---------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Weikert-----------	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
793G:										
Berks-------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
Muskingum---------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Weikert-----------	Very poor.	Poor	Poor	Very poor.	Very poor.	Very poor.	Very poor.	Poor	Very poor.	Very poor.
801B:										
Orthents, silty---	Good	Good	Good	Good	Good	Fair	Poor	Good	Good	Poor.
802D:										
Orthents, loamy---	Fair	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
802F:										
Orthents, loamy---	Very poor.	Poor	Good	Good	Good	Very poor.	Very poor.	Poor	Good	Very poor.
834F:										
Wellston----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Westmore----------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
864.										
Pits, quarries										
865.										
Pits, gravel										

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Potential for habitat elements: Grasses and legumes	Potential for habitat elements: Wild herbaceous plants	Potential for habitat elements: Hardwood trees	Potential for habitat elements: Coniferous plants	Potential for habitat elements: Wetland plants	Potential for habitat elements: Shallow water areas	Potential as habitat for--: Openland wildlife	Potential as habitat for--: Woodland wildlife	Potential as habitat for--: Wetland wildlife
940D2:										
Zanesville----------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Westmore------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
955F:										
Muskingum-----------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Berks---------------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
955G:										
Muskingum-----------	Very poor.	Poor	Good	Fair	Fair	Very poor.	Very poor.	Poor	Fair	Very poor.
Berks---------------	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
977F:										
Wellston------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Neotoma-------------	Very poor.	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
986D:										
Wellston------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Berks---------------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
986D2:										
Wellston------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Berks---------------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.
986D3:										
Wellston------------	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Berks---------------	Poor	Fair	Fair	Poor	Poor	Very poor.	Very poor.	Fair	Poor	Very poor.

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
986F:										
Wellston	Poor	Fair	Good	Good	Good	Very poor.	Very poor.	Fair	Good	Very poor.
Berks	Very poor.	Poor	Fair	Poor	Poor	Very poor.	Very poor.	Poor	Poor	Very poor.
1334A:										
Birds	Fair	Fair	Fair	Fair	Fair	Good	Good	Good	Good	Good.
1843A:										
Bonnie	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
Petrolia	Fair	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
1846A:										
Karnak	Very poor.	Very poor.	Very poor.	Poor	Poor	Good	Good	Very poor.	Poor	Good.
Cape	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
3071A:										
Darwin	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.
3108A:										
Bonnie	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
3180A:										
Dupo	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3288A:										
Petrolia	Fair	Fair	Fair	Good	Fair	Good	Good	Fair	Fair	Good.
3331A:										
Haymond	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
3333A:										
Wakeland	Poor	Fair	Fair	Good	Good	Fair	Fair	Fair	Good	Fair.
3334A:										
Birds	Good	Fair	Good	Good	Fair	Good	Good	Good	Good	Good.
3382A:										
Belknap	Fair	Good	Good	Good	Fair	Fair	Fair	Good	Good	Fair.
3420A:										
Piopolis	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements: Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Potential as habitat for--: Openland wildlife	Woodland wildlife	Wetland wildlife
3426A:										
Karnak	Very poor.	Poor	Poor	Fair	Very poor.	Good	Good	Poor	Fair	Good.
7460A:										
Ginat	Fair	Poor	Poor	Poor	Poor	Good	Good	Poor	Poor	Good.
7462A:										
Sciotoville	Good	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
7462B:										
Sciotoville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7462C2:										
Sciotoville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7462C3:										
Sciotoville	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7462D2:										
Sciotoville	Fair	Good	Good	Good	Good	Very poor.	Very poor.	Good	Good	Very poor.
7463B:										
Wheeling	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7463C2:										
Wheeling	Fair	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
7711A:										
Hatfield	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
7711B:										
Hatfield	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
7711B2:										
Hatfield	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
8071A:										
Darwin	Poor	Poor	Fair	Poor	Poor	Good	Good	Poor	Poor	Good.

Table 14.—Wildlife Habitat—Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herba- ceous plants	Hardwood trees	Conif- erous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
8072A:										
Sharon	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
8108A:										
Bonnie	Poor	Fair	Fair	Fair	Poor	Good	Good	Fair	Fair	Good.
8180A:										
Dupo	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
8331A:										
Haymond	Good	Good	Fair	Good	Good	Poor	Poor	Good	Good	Poor.
8333A:										
Wakeland	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
8382A:										
Belknap	Fair	Good	Good	Good	Good	Fair	Fair	Good	Good	Fair.
8420A:										
Piopolis	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.
8426A:										
Karnak	Very poor.	Poor	Poor	Fair	Very poor.	Good	Good	Poor	Fair	Good.
8427B:										
Burnside	Fair	Good	Good	Good	Good	Poor	Poor	Good	Good	Poor.
8787A:										
Banlic	Fair	Good	Good	Good	Good	Fair	Good	Good	Good	Fair.
W.										
Water										

Table 15.—Building Site Development, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B:							
Menfro	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79C2:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.01	Slope	0.01	Shrink-swell	0.50
79C3:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.01	Slope	0.01	Shrink-swell	0.50
79D2:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79D3:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79E2:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79E3:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
79F:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39			Depth to saturated zone	0.39
164B:							
Stoy	90	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39			Depth to saturated zone	0.39

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
175A:							
Lamont	90	Not limited		Not limited		Not limited	
175B:							
Lamont	90	Not limited		Not limited		Not limited	
175C2:							
Lamont	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
214B:							
Hosmer	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
214C2:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
214C3:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
214D2:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
		Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
				Shrink-swell	0.50		
214D3:							
Hosmer	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
		Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
				Shrink-swell	0.50		
301B:							
Grantsburg	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Shrink-swell	0.50
				Shrink-swell	0.50		
301C2:							
Grantsburg	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
301C3:							
Grantsburg	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
		Slope	0.01	Shrink-swell	0.50	Shrink-swell	0.50
				Slope	0.01		
301D2:							
Grantsburg	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
		Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
				Shrink-swell	0.50		
301D3:							
Grantsburg	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
		Shrink-swell	0.50	Slope	0.96	Shrink-swell	0.50
				Shrink-swell	0.50		
335B:							
Robbs	90	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Depth to saturated zone	1.00	Shrink-swell	0.50
		Depth to saturated zone	0.39	Shrink-swell	0.50	Depth to saturated zone	0.39
339C:							
Wellston	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Slope	0.01	Slope	1.00
339D:							
Wellston	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
339D2:							
Wellston	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
				Depth to hard bedrock	0.02		
339F:							
Wellston	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
340C2:							
Zanesville	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Depth to saturated zone	0.99	Slope	1.00
				Depth to hard bedrock	0.02		
				Slope	0.01		
340C3:							
Zanesville	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.01	Depth to saturated zone	0.99	Slope	1.00
				Depth to hard bedrock	0.08		
				Slope	0.01		

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
340D:							
Zanesville----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
				Slope	0.96		
340D2:							
Zanesville----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
				Slope	0.96		
				Depth to hard bedrock	0.02		
340D3:							
Zanesville----------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
				Slope	0.96		
				Depth to hard bedrock	0.08		
477C2:							
Winfield------------	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Depth to saturated zone	0.99	Slope	1.00
		Slope	0.01			Shrink-swell	0.50
				Shrink-swell	0.50		
				Slope	0.01		
691D:							
Beasley-------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
691F:							
Beasley-------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
793F:							
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
Muskingum-----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
				Depth to soft bedrock	0.15		
Weikert-------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
793G:							
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
				Depth to soft bedrock	0.15		
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.50	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
801B:							
Orthents, silty	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
802D:							
Orthents, loamy	90	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
		Slope	0.37	Slope	0.37	Shrink-swell	0.50
802F:							
Orthents, loamy	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
834F:							
Wellston	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Westmore	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
864:							
Pits, quarries	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Depth to saturated zone	0.99	Slope	1.00
				Slope	0.96		
				Depth to hard bedrock	0.02		
Westmore	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	0.96	Slope	0.96	Shrink-swell	1.00

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
955F:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
				Depth to soft bedrock	0.15		
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
955G:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.15	Depth to hard bedrock	1.00	Depth to hard bedrock	0.15
				Depth to soft bedrock	0.15		
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
977F:							
Wellston	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Neotoma	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.59	Large stones content	0.59	Large stones content	0.59
986D:							
Wellston	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
Berks	40	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Slope	0.96	Depth to hard bedrock	0.64
986D2:							
Wellston	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
				Depth to hard bedrock	0.02		
Berks	40	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.84	Slope	0.96	Depth to hard bedrock	0.84
986D3:							
Wellston	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.96	Slope	0.96	Slope	1.00
				Depth to hard bedrock	0.08		

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
986D3:							
Berks	40	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.95	Slope	0.96	Depth to hard bedrock	0.95
986F:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Depth to hard bedrock	1.00	Depth to hard bedrock	0.64
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
1843A:							
Bonnie	45	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Petrolia	45	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
1846A:							
Karnak	55	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
Cape	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
3071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
3108A:							
Bonnie	90	Very limited Ponding Flooding Depth to saturated zone	 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	 1.00 1.00 1.00
3180A:							
Dupo	90	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00
3288A:							
Petrolia	90	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50
3331A:							
Haymond	90	Very limited Flooding	 1.00	Very limited Flooding	 1.00	Very limited Flooding	 1.00
3333A:							
Wakeland	90	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00
3334A:							
Birds	90	Very limited Ponding Flooding Depth to saturated zone	 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone	 1.00 1.00 1.00
3382A:							
Belknap	90	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00	Very limited Flooding Depth to saturated zone	 1.00 1.00
3420A:							
Piopolis	90	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 0.50
3426A:							
Karnak	90	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 1.00	Very limited Ponding Flooding Depth to saturated zone Shrink-swell	 1.00 1.00 1.00 1.00

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
7460A:							
Ginat	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		
7462A:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
7462B:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Depth to saturated zone	0.07
7462C2:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.07
7462C3:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Depth to saturated zone	1.00	Slope	1.00
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.07
7462D2:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Slope	1.00
		Slope	0.96	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	0.07	Slope	0.96	Depth to saturated zone	0.07
7463B:							
Wheeling	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
7463C2:							
Wheeling	95	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Slope	0.01	Slope	0.01	Slope	1.00
7711A:							
Hatfield	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements		Dwellings with basements		Small commercial buildings	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7711B:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		
7711B2:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	0.50		
8071A:							
Darwin--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8072A:							
Sharon--------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to saturated zone	0.61		
8108A:							
Bonnie--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8180A:							
Dupo----------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Shrink-swell	1.00		
8331A:							
Haymond-------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
8333A:							
Wakeland------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
8382A:							
Belknap-------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 15.—Building Site Development, Part I—Continued

Map symbol and soil name	Pct. of map unit	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value	Small commercial buildings: Rating class and limiting features	Value
8420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Shrink-swell	0.50
8426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Shrink-swell	1.00
8427B:							
Burnside	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
				Depth to hard bedrock	0.02		
8787A:							
Banlic	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
W:							
Water	100	Not rated		Not rated		Not rated	

Table 15.—Building Site Development, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
79B:							
Menfro----------------	90	Very limited		Somewhat limited		Not limited	
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
79C2:							
Menfro----------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Cutbanks cave	0.10	Slope	0.01
		Low strength	1.00	Slope	0.01		
		Shrink-swell	0.50				
		Slope	0.01				
79C3:							
Menfro----------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Cutbanks cave	0.10	Slope	0.01
		Low strength	1.00	Slope	0.01		
		Shrink-swell	0.50				
		Slope	0.01				
79D2:							
Menfro----------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.96				
		Shrink-swell	0.50				
79D3:							
Menfro----------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Low strength	1.00	Cutbanks cave	0.10		
		Slope	0.96				
		Shrink-swell	0.50				
79E2:							
Menfro----------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
79E3:							
Menfro----------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				
79F:							
Menfro----------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Shrink-swell	0.50				

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
99G:							
Sandstone Rock Land-	45	Not rated		Not rated		Not rated	
Limestone Rock Land-	40	Not rated		Not rated		Not rated	
164A:							
Stoy----------------	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
		Depth to saturated zone	0.19				
164B:							
Stoy----------------	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.19
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
		Depth to saturated zone	0.19				
175A:							
Lamont--------------	90	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
175B:							
Lamont--------------	90	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
175C2:							
Lamont--------------	90	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Slope	0.01
		Slope	0.01	Slope	0.01		
214B:							
Hosmer--------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.64
		Low strength	0.78	Cutbanks cave	0.10		
		Shrink-swell	0.50				
214C2:							
Hosmer--------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.86
		Low strength	0.78	Cutbanks cave	0.10	Slope	0.01
		Shrink-swell	0.50	Slope	0.01		
		Slope	0.01				
214C3:							
Hosmer--------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.95
		Low strength	0.78	Cutbanks cave	0.10	Slope	0.01
		Shrink-swell	0.50	Slope	0.01		
		Slope	0.01				
214D2:							
Hosmer--------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
		Slope	0.96	Slope	0.96	Depth to cemented pan	0.86
		Low strength	0.78	Cutbanks cave	0.10		
		Shrink-swell	0.50				

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
214D3:							
Hosmer	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
		Slope	0.96	Slope	0.96	Depth to cemented pan	0.95
		Low strength	0.78	Cutbanks cave	0.10		
		Shrink-swell	0.50				
301B:							
Grantsburg	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.01
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50				
301C2:							
Grantsburg	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.10
		Shrink-swell	0.05	Cutbanks cave	0.10	Slope	0.01
		Slope	0.01	Slope	0.01		
301C3:							
Grantsburg	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.20
		Shrink-swell	0.50	Cutbanks cave	0.10	Slope	0.01
		Slope	0.01	Slope	0.01		
301D2:							
Grantsburg	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
		Slope	0.96	Slope	0.96	Depth to cemented pan	0.10
		Shrink-swell	0.50	Cutbanks cave	0.10		
301D3:							
Grantsburg	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Slope	0.96
		Slope	0.96	Slope	0.96	Depth to cemented pan	0.20
		Shrink-swell	0.50	Cutbanks cave	0.10		
335B:							
Robbs	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to cemented pan	0.79
		Shrink-swell	0.50	Cutbanks cave	0.10	Depth to saturated zone	0.19
		Depth to saturated zone	0.19				
339C:							
Wellston	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Cutbanks cave	0.10	Slope	0.01
		Low strength	1.00	Slope	0.01		
		Slope	0.01				
339D:							
Wellston	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Cutbanks cave	0.10		

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
339D2:							
Wellston------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Cutbanks cave	0.10		
				Depth to hard bedrock	0.02		
339F:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
340C2:							
Zanesville----------	90	Very limited		Somewhat limited		Very limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	1.00
		Slope	0.01	Depth to hard bedrock	0.02	Droughty	0.01
				Slope	0.01	Slope	0.01
340C3:							
Zanesville----------	90	Very limited		Somewhat limited		Very limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	1.00
		Slope	0.01	Depth to hard bedrock	0.08	Droughty	0.16
				Slope	0.01	Slope	0.01
340D:							
Zanesville----------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	0.97
		Slope	0.96	Slope	0.96	Slope	0.96
				Cutbanks cave	0.10		
340D2:							
Zanesville----------	90	Very limited		Somewhat limited		Very limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
				Depth to hard bedrock	0.02	Droughty	0.01
340D3:							
Zanesville----------	90	Very limited		Somewhat limited		Very limited	
		Frost action	1.00	Depth to saturated zone	0.99	Depth to cemented pan	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
				Depth to hard bedrock	0.08	Droughty	0.16
477C2:							
Winfield------------	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.99	Slope	0.01
		Low strength	1.00	Cutbanks cave	0.10		
		Shrink-swell	0.50	Slope	0.01		
		Slope	0.01				

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
691D:							
Beasley	90	Somewhat limited Slope Shrink-swell	 0.96 0.50	Very limited Cutbanks cave Slope Too clayey	 1.00 0.96 0.18	Somewhat limited Slope	 0.96
691F:							
Beasley	90	Very limited Slope Shrink-swell	 1.00 0.50	Very limited Slope Cutbanks cave Too clayey	 1.00 1.00 0.18	Very limited Slope	 1.00
793F:							
Berks	40	Very limited Slope Depth to hard bedrock	 1.00 0.64	Very limited Depth to hard bedrock Slope Cutbanks cave	 1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	 1.00 0.99 0.65 0.39 0.32
Muskingum	35	Very limited Slope Frost action Depth to hard bedrock	 1.00 0.50 0.15	Very limited Depth to hard bedrock Slope Depth to soft bedrock Cutbanks cave	 1.00 1.00 0.15 0.10	Very limited Slope Depth to bedrock Large stones content	 1.00 0.16 0.01
Weikert	15	Very limited Depth to hard bedrock Slope Frost action	 1.00 1.00 0.50	Very limited Depth to hard bedrock Slope Cutbanks cave	 1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	 1.00 1.00 1.00 0.92 0.01
793G:							
Berks	40	Very limited Slope Depth to hard bedrock	 1.00 0.64	Very limited Depth to hard bedrock Slope Cutbanks cave	 1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	 1.00 0.99 0.65 0.39 0.32
Muskingum	35	Very limited Slope Frost action Depth to hard bedrock	 1.00 0.50 0.15	Very limited Depth to hard bedrock Slope Depth to soft bedrock Cutbanks cave	 1.00 1.00 0.15 0.10	Very limited Slope Depth to bedrock Large stones content	 1.00 0.16 0.01
Weikert	15	Very limited Depth to hard bedrock Slope Depth to soft bedrock Frost action	 1.00 1.00 1.00 0.50	Very limited Depth to hard bedrock Depth to soft bedrock Slope Cutbanks cave	 1.00 1.00 1.00 0.10	Very limited Slope Droughty Depth to bedrock Gravel content Large stones content	 1.00 1.00 1.00 0.92 0.01

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets Rating class and limiting features	Value	Shallow excavations Rating class and limiting features	Value	Lawns and landscaping Rating class and limiting features	Value
801B:							
Orthents, silty-----	90	Very limited Frost action Low strength Shrink-swell	 1.00 1.00 0.50	Somewhat limited Cutbanks cave	 0.10	Not limited	
802D:							
Orthents, loamy-----	90	Very limited Low strength Shrink-swell Frost action Slope	 1.00 0.50 0.50 0.37	Somewhat limited Dense layer Slope Cutbanks cave	 0.50 0.37 0.10	Somewhat limited Slope	 0.37
802F:							
Orthents, loamy-----	85	Very limited Slope Low strength Shrink-swell Frost action	 1.00 1.00 0.50 0.50	Very limited Slope Dense layer Cutbanks cave	 1.00 0.50 0.10	Very limited Slope	 1.00
834F:							
Wellston------------	55	Very limited Slope Frost action	 1.00 1.00	Very limited Slope Cutbanks cave	 1.00 0.10	Very limited Slope	 1.00
Westmore------------	35	Very limited Slope Frost action Shrink-swell Low strength	 1.00 1.00 1.00 1.00	Very limited Slope Cutbanks cave	 1.00 1.00	Very limited Slope	 1.00
864:							
Pits, quarries------	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel--------	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville----------	45	Very limited Frost action Slope	 1.00 0.96	Somewhat limited Depth to saturated zone Slope Depth to hard bedrock	 0.99 0.96 0.02	Very limited Depth to cemented pan Slope Droughty	 1.00 0.96 0.01
Westmore------------	45	Very limited Frost action Shrink-swell Low strength Slope	 1.00 1.00 1.00 0.96	Very limited Cutbanks cave Slope	 1.00 0.96	Somewhat limited Slope	 0.96
955F:							
Muskingum-----------	55	Very limited Slope Frost action Depth to hard bedrock	 1.00 0.50 0.15	Very limited Depth to hard bedrock Slope Depth to soft bedrock Cutbanks cave	 1.00 1.00 0.15 0.10	Very limited Slope Depth to bedrock Large stones content	 1.00 0.16 0.01

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
955F:							
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Slope	1.00	Droughty	0.99
				Cutbanks cave	0.10	Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
955G:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Frost action	0.50	Slope	1.00	Depth to bedrock	0.16
		Depth to hard bedrock	0.15	Depth to soft bedrock	0.15	Large stones content	0.01
				Cutbanks cave	0.10		
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Slope	1.00	Droughty	0.99
				Cutbanks cave	0.10	Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
977F:							
Wellston	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
Neotoma	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Large stones content	0.59	Large stones content	0.59	Large stones content	0.68
				Cutbanks cave	0.10	Gravel content	0.08
986D:							
Wellston	50	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Cutbanks cave	0.10		
Berks	40	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.96	Depth to hard bedrock	1.00	Droughty	0.99
		Depth to hard bedrock	0.64	Slope	0.96	Slope	0.96
				Cutbanks cave	0.10	Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
986D2:							
Wellston	50	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Cutbanks cave	0.10		
				Depth to hard bedrock	0.02		

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
986D2:							
Berks	40	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to hard bedrock	1.00	Droughty	1.00
		Depth to hard bedrock	0.84	Slope	0.96	Slope	0.96
				Cutbanks cave	0.10	Depth to bedrock	0.84
						Gravel content	0.39
						Large stones content	0.32
986D3:							
Wellston	50	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Cutbanks cave	0.10		
				Depth to hard bedrock	0.08		
Berks	40	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to hard bedrock	1.00	Droughty	1.00
		Depth to hard bedrock	0.95	Slope	0.96	Slope	0.96
				Cutbanks cave	0.10	Depth to bedrock	0.95
						Gravel content	0.39
						Large stones content	0.32
986F:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Frost action	1.00	Cutbanks cave	0.10		
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Depth to hard bedrock	0.64	Slope	1.00	Droughty	0.99
				Cutbanks cave	0.10	Depth to bedrock	0.65
						Gravel content	0.39
						Large stones content	0.32
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
1843A:							
Bonnie	45	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
Petrolia	45	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
1846A:							
Karnak	55	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Too clayey	0.95	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.80	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	0.10		
Cape	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00	Too clayey	0.02		
3071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Too clayey	0.32	Too clayey	1.00
		Low strength	1.00	Cutbanks cave	0.10		
3108A:							
Bonnie	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
3180A:							
Dupo	90	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.95
		Depth to saturated zone	0.95	Too clayey	0.24		
				Cutbanks cave	0.10		
3288A:							
Petrolia	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
3331A:							
Haymond	90	Very limited		Somewhat limited		Very limited	
		Frost action	1.00	Flooding	0.80	Flooding	1.00
		Flooding	1.00	Cutbanks cave	0.10		

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
3333A:							
Wakeland------------	90	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Cutbanks cave	0.10		
3334A:							
Birds---------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
3382A:							
Belknap-------------	90	Very limited		Very limited		Very limited	
		Frost action	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Flooding	1.00	Flooding	0.80	Depth to saturated zone	0.94
		Depth to saturated zone	0.94	Cutbanks cave	0.10		
3420A:							
Piopolis------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Flooding	0.80	Depth to saturated zone	1.00
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
3426A:							
Karnak--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frost action	1.00	Too clayey	0.95	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.80	Too clayey	1.00
		Shrink-swell	1.00	Cutbanks cave	0.10		
7460A:							
Ginat---------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
		Flooding	0.40				
7462A:							
Sciotoville---------	95	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Low strength	0.78	Cutbanks cave	0.10		
		Flooding	0.40				
		Depth to saturated zone	0.03				

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
7462B:							
Sciotoville	95	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Low strength	0.78	Cutbanks cave	0.10		
		Flooding	0.40				
		Depth to saturated zone	0.03				
7462C2:							
Sciotoville	95	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Low strength	0.78	Cutbanks cave	0.10	Slope	0.01
		Flooding	0.40	Slope	0.01		
		Depth to saturated zone	0.03				
		Slope	0.01				
7462C3:							
Sciotoville	95	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.03
		Low strength	0.78	Cutbanks cave	0.10	Slope	0.01
		Flooding	0.40	Slope	0.01		
		Depth to saturated zone	0.03				
		Slope	0.01				
7462D2:							
Sciotoville	95	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Slope	0.96
		Slope	0.96	Slope	0.96	Depth to saturated zone	0.03
		Low strength	0.78	Cutbanks cave	0.10		
		Flooding	0.40				
		Depth to saturated zone	0.03				
7463B:							
Wheeling	95	Somewhat limited		Very limited		Not limited	
		Frost action	0.50	Cutbanks cave	1.00		
		Flooding	0.40				
7463C2:							
Wheeling	95	Somewhat limited		Very limited		Somewhat limited	
		Frost action	0.50	Cutbanks cave	1.00	Slope	0.01
		Flooding	0.40	Slope	0.01		
		Slope	0.01				
7711A:							
Hatfield	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	0.78				
		Flooding	0.40				
7711B:							
Hatfield	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	0.78				
		Flooding	0.40				

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
7711B2:							
Hatfield	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Cutbanks cave	0.10		
		Low strength	0.78				
		Flooding	0.40				
8071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Flooding	0.60	Too clayey	1.00
		Flooding	1.00	Too clayey	0.32	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
8072A:							
Sharon	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	0.61	Flooding	0.60
		Flooding	1.00	Flooding	0.60		
				Cutbanks cave	0.10		
8108A:							
Bonnie	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
8180A:							
Dupo	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.95
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Depth to saturated zone	0.95	Too clayey	0.24		
				Cutbanks cave	0.10		
8331A:							
Haymond	90	Very limited		Somewhat limited		Somewhat limited	
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
8333A:							
Wakeland	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Depth to saturated zone	0.94	Cutbanks cave	0.10		
8382A:							
Belknap	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Depth to saturated zone	0.94	Cutbanks cave	0.10		

Table 15.—Building Site Development, Part II—Continued

Map symbol and soil name	Pct. of map unit	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value	Lawns and landscaping: Rating class and limiting features	Value
8420A:							
Piopolis------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Flooding	0.60	Flooding	0.60
		Flooding	1.00	Cutbanks cave	0.10		
		Low strength	1.00				
8426A:							
Karnak--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Frost action	1.00	Too clayey	0.95	Too clayey	1.00
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Low strength	1.00	Cutbanks cave	0.10		
8427B:							
Burnside------------	90	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.60	Flooding	0.60
		Frost action	0.50	Cutbanks cave	0.10	Large stones content	0.01
				Depth to hard bedrock	0.02		
8787A:							
Banlic--------------	90	Very limited		Very limited		Somewhat limited	
		Frost action	1.00	Depth to saturated zone	1.00	Depth to saturated zone	0.94
		Flooding	1.00				
		Depth to saturated zone	0.94	Flooding	0.60	Flooding	0.60
				Cutbanks cave	0.10		
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 16.—Sanitary Facilities, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
79B:					
Menfro	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.46	Seepage	0.53
				Slope	0.32
79C2:					
Menfro	90	Somewhat limited		Very limited	
		Slow water movement	0.46	Slope	1.00
		Slope	0.01	Seepage	0.53
79C3:					
Menfro	90	Somewhat limited		Very limited	
		Slow water movement	0.46	Slope	1.00
		Slope	0.01	Seepage	0.53
79D2:					
Menfro	90	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
79D3:					
Menfro	90	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
79E2:					
Menfro	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
79E3:					
Menfro	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
79F:					
Menfro	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
99G:					
Sandstone Rock Land	45	Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated	

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
164A:					
Stoy	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.53
164B:					
Stoy	90	Very limited		Somewhat limited	
		Slow water movement	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
175A:					
Lamont	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
175B:					
Lamont	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	0.32
175C2:					
Lamont	90	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
				Slope	1.00
		Slope	0.01		
214B:					
Hosmer	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.32
		Slow water movement	0.46	Depth to saturated zone	0.17
214C2:					
Hosmer	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.53
		Slow water movement	0.46	Depth to saturated zone	0.17
		Slope	0.01		
214C3:					
Hosmer	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.53
		Slope	0.01	Depth to saturated zone	0.17

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
214D2:					
Hosmer	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.96	Seepage	0.53
		Slow water movement	0.46	Depth to saturated zone	0.17
214D3:					
Hosmer	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.96	Seepage	0.53
				Depth to saturated zone	0.17
301B:					
Grantsburg	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Slow water movement	1.00	Slope	0.32
				Depth to saturated zone	0.17
301C2:					
Grantsburg	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Slope	0.01	Depth to saturated zone	0.17
301C3:					
Grantsburg	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Slope	0.01	Depth to saturated zone	0.17
301D2:					
Grantsburg	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Slope	0.96	Depth to saturated zone	0.17

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
301D3:					
Grantsburg----------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Slope	0.96	Depth to saturated zone	0.17
335B:					
Robbs---------------	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to cemented pan	1.00
		Depth to cemented pan	1.00	Depth to saturated zone	0.75
		Depth to saturated zone	1.00	Seepage	0.53
				Slope	0.08
339C:					
Wellston------------	90	Somewhat limited		Very limited	
		Slow water movement	0.46	Slope	1.00
		Depth to bedrock	0.27	Seepage	0.53
		Slope	0.01		
339D:					
Wellston------------	90	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.27		
339D2:					
Wellston------------	90	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.41	Depth to hard bedrock	0.02
				Depth to soft bedrock	0.02
339F:					
Wellston------------	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.27		
340C2:					
Zanesville----------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Depth to bedrock	0.41	Seepage	0.53
		Slope	0.01	Depth to saturated zone	0.17
				Depth to hard bedrock	0.02

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
340C3:					
Zanesville----------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.53
		Depth to bedrock	0.52	Depth to saturated zone	0.17
		Slope	0.01		
				Depth to hard bedrock	0.08
340D:					
Zanesville----------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.53
		Slope	0.96	Depth to saturated zone	0.17
		Depth to bedrock	0.27		
340D2:					
Zanesville----------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.53
		Slope	0.96	Depth to saturated zone	0.17
		Depth to bedrock	0.41		
				Depth to hard bedrock	0.02
340D3:					
Zanesville----------	90	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
				Seepage	0.53
		Slope	0.96	Depth to saturated zone	0.17
		Depth to bedrock	0.52		
				Depth to hard bedrock	0.08
477C2:					
Winfield------------	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Slope	1.00
				Seepage	0.53
		Slope	0.01		
691D:					
Beasley-------------	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
				Depth to soft bedrock	1.00
		Depth to bedrock	1.00		
		Slope	0.96		

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
691F:					
Beasley	90	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Depth to soft bedrock	1.00
		Depth to bedrock	1.00		
793F:					
Berks	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Muskingum	35	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.46	Slope	1.00
				Seepage	1.00
Weikert	15	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
793G:					
Berks	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
Muskingum	35	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.46	Slope	1.00
				Seepage	1.00
Weikert	15	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to soft bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
				Seepage	1.00
801B:					
Orthents, silty	90	Somewhat limited		Somewhat limited	
		Slow water movement	0.72	Seepage	0.28
				Slope	0.08

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
802D:					
Orthents, loamy-----	90	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.37		
802F:					
Orthents, loamy-----	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00		
834F:					
Wellston------------	55	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.25		
Westmore------------	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	1.00	Seepage	0.53
		Depth to bedrock	0.17		
864:					
Pits, quarries------	90	Not rated		Not rated	
865:					
Pits, gravel--------	90	Not rated		Not rated	
940D2:					
Zanesville----------	45	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	1.00	Slope	1.00
		Slope	0.96	Seepage	0.53
		Depth to bedrock	0.41	Depth to saturated zone	0.17
				Depth to hard bedrock	0.02
Westmore------------	45	Very limited		Very limited	
		Slow water movement	1.00	Slope	1.00
		Slope	0.96	Seepage	0.53
		Depth to bedrock	0.30		
955F:					
Muskingum-----------	55	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.46	Slope	1.00
				Seepage	1.00

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
955F:					
Berks	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
955G:					
Muskingum	55	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to soft bedrock	1.00
		Slow water movement	0.46	Slope	1.00
				Seepage	1.00
Berks	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
977F:					
Wellston	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.25		
Neotoma	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Large stones content	0.59	Large stones content	0.22
		Depth to bedrock	0.09		
986D:					
Wellston	50	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.27		
Berks	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.96	Seepage	1.00
986D2:					
Wellston	50	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.41	Depth to hard bedrock	0.02
				Depth to soft bedrock	0.02

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
986D2:					
Berks	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.96	Seepage	1.00
986D3:					
Wellston	50	Somewhat limited		Very limited	
		Slope	0.96	Slope	1.00
		Depth to bedrock	0.52	Seepage	0.53
		Slow water movement	0.46	Depth to hard bedrock	0.08
Berks	40	Very limited		Very limited	
		Seepage, bottom layer	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	0.96	Seepage	1.00
986F:					
Wellston	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Slow water movement	0.46	Seepage	0.53
		Depth to bedrock	0.27		
Berks	40	Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00
1334A:					
Birds	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
1843A:					
Bonnie	45	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
Petrolia	45	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
1846A:					
Karnak	55	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
Cape	35	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
3071A:					
Darwin	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
3108A:					
Bonnie	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
3180A:					
Dupo	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
3288A:					
Petrolia	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
3331A:					
Haymond	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.46	Seepage	0.53

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Sewage lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value
3333A:					
Wakeland	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Seepage	0.53
3334A:					
Birds	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
3382A:					
Belknap	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.72	Seepage	0.28
3420A:					
Piopolis	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
3426A:					
Karnak	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
7460A:					
Ginat	90	Very limited		Very limited	
		Slow water movement	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
7462A:					
Sciotoville	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44
		Slow water movement	1.00	Flooding	0.40
		Flooding	0.40		

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
7462B:					
Sciotoville	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44
		Slow water movement	1.00	Flooding	0.40
		Flooding	0.40	Slope	0.32
7462C2:					
Sciotoville	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	0.44
		Flooding	0.40	Flooding	0.40
		Slope	0.01		
7462C3:					
Sciotoville	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Seepage	1.00
		Seepage, bottom layer	1.00	Slope	1.00
		Slow water movement	1.00	Depth to saturated zone	0.44
		Flooding	0.40	Flooding	0.40
		Slope	0.01		
7462D2:					
Sciotoville	95	Very limited		Very limited	
		Depth to saturated zone	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	1.00	Depth to saturated zone	0.44
		Slope	0.96	Flooding	0.40
		Flooding	0.40		
7463B:					
Wheeling	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.46	Flooding	0.40
		Flooding	0.40	Slope	0.32
7463C2:					
Wheeling	95	Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00
		Slow water movement	0.46	Slope	1.00
		Flooding	0.40	Flooding	0.40
		Slope	0.01		

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
7711A:					
Hatfield-----------	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
7711B:					
Hatfield-----------	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
				Slope	0.32
7711B2:					
Hatfield-----------	90	Very limited		Very limited	
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53
		Flooding	0.40	Flooding	0.40
				Slope	0.32
8071A:					
Darwin-------------	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
		Ponding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
8072A:					
Sharon-------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	0.71
		Slow water movement	0.46	Seepage	0.53
8108A:					
Bonnie-------------	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Ponding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	1.00		
8180A:					
Dupo---------------	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Seepage	0.53

Table 16.—Sanitary Facilities, Part I—Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
8331A:					
Hyamond	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.46	Seepage	0.53
8333A:					
Wakeland	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.46	Seepage	0.53
8382A:					
Belknap	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Slow water movement	0.72	Seepage	0.28
8420A:					
Piopolis	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
				Depth to saturated zone	1.00
		Ponding	1.00		
		Depth to saturated zone	1.00		
8426A:					
Karnak	90	Very limited		Very limited	
		Flooding	1.00	Ponding	1.00
		Slow water movement	1.00	Flooding	1.00
				Depth to saturated zone	1.00
		Ponding	1.00		
		Depth to saturated zone	1.00		
8427B:					
Burnside	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	0.46	Seepage	0.53
				Slope	0.08
		Depth to bedrock	0.41	Depth to hard bedrock	0.02
8787A:					
Banlic	90	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
W:					
Water	100	Not rated		Not rated	

Table 16.—Sanitary Facilities, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B:							
Menfro	90	Somewhat limited		Not limited		Somewhat limited	
		Too clayey	0.50			Too clayey	0.50
79C2:							
Menfro	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.01	Too clayey	0.50
		Slope	0.01			Slope	0.01
79C3:							
Menfro	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Slope	0.01	Too clayey	0.50
		Slope	0.01			Slope	0.01
79D2:							
Menfro	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.96	Slope	0.96	Slope	0.96
		Too clayey	0.50			Too clayey	0.50
79D3:							
Menfro	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.96	Slope	0.96	Slope	0.96
		Too clayey	0.50			Too clayey	0.50
79E2:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
79E3:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
79F:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too clayey	0.50			Too clayey	0.50
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.86
						Too clayey	0.50

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
164B:							
Stoy	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	0.75	Depth to saturated zone	0.86
						Too clayey	0.50
175A:							
Lamont	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
175B:							
Lamont	90	Very limited		Very limited		Very limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	1.00
		Too sandy	0.50			Too sandy	0.50
175C2:							
Lamont	90	Very limited		Very limited		Somewhat limited	
		Seepage, bottom layer	1.00	Seepage	1.00	Seepage	0.52
		Slope	0.01	Slope	0.01	Slope	0.01
214B:							
Hosmer	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.84	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
						Depth to saturated zone	0.44
214C2:							
Hosmer	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.84	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.44
						Slope	0.01
214C3:							
Hosmer	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.84	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.04
						Slope	0.01
214D2:							
Hosmer	90	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	0.84	Slope	0.96	Slope	0.96
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
						Depth to saturated zone	0.44

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
214D3:							
Hosmer	90	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	0.84	Slope	0.96	Slope	0.96
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
						Depth to saturated zone	0.44
301B:							
Grantsburg	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.84	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
						Depth to saturated zone	0.44
301C2:							
Grantsburg	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.84	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.44
						Slope	0.01
301C3:							
Grantsburg	90	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.84	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
		Slope	0.01	Slope	0.01	Depth to saturated zone	0.44
						Slope	0.01
301D2:							
Grantsburg	90	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	0.84	Slope	0.96	Slope	0.96
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
						Depth to saturated zone	0.44
301D3:							
Grantsburg	90	Somewhat limited		Very limited		Very limited	
		Slope	0.96	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Depth to saturated zone	0.84	Slope	0.96	Slope	0.96
		Too clayey	0.50	Depth to saturated zone	0.17	Too clayey	0.50
						Depth to saturated zone	0.44
335B:							
Robbs	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Too clayey	0.50	Depth to saturated zone	0.75	Depth to saturated zone	0.86
						Too clayey	0.50

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
339C:							
Wellston------------	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.01	Slope	0.01
		Slope	0.01				
339D:							
Wellston------------	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.96	Slope	0.96
		Slope	0.96				
339D2:							
Wellston------------	90	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Depth to bedrock	0.02	Depth to bedrock	0.02
339F:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00				
340C2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Depth to	0.84	pan		pan	
		saturated zone		Depth to	0.17	Too clayey	0.50
		Too clayey	0.50	saturated zone		Depth to	0.44
		Slope	0.01	Depth to bedrock	0.02	saturated zone	
				Slope	0.01	Depth to bedrock	0.02
						Slope	0.01
340C3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Depth to	0.84	pan		pan	
		saturated zone		Depth to	0.17	Too clayey	0.50
		Too clayey	0.50	saturated zone		Depth to	0.44
		Slope	0.01	Depth to bedrock	0.08	saturated zone	
				Slope	0.01	Depth to bedrock	0.08
						Slope	0.01
340D:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Slope	0.96	pan		pan	
		Depth to	0.84	Slope	0.96	Slope	0.96
		saturated zone		Depth to	0.17	Too clayey	0.50
		Too clayey	0.50	saturated zone		Depth to	0.44
						saturated zone	
340D2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to cemented	1.00	Depth to cemented	1.00
		Slope	0.96	pan		pan	
		Depth to	0.84	Slope	0.96	Slope	0.96
		saturated zone		Depth to	0.17	Too clayey	0.50
		Too clayey	0.50	saturated zone		Depth to	0.44
				Depth to bedrock	0.02	saturated zone	
						Depth to bedrock	0.02

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
340D3:							
Zanesville	90	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
		Depth to saturated zone	0.84	Depth to saturated zone	0.17	Too clayey	0.50
		Too clayey	0.50	Depth to bedrock	0.08	Depth to saturated zone	0.44
						Depth to bedrock	0.08
477C2:							
Winfield	90	Very limited		Very limited		Somewhat limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50	Slope	0.01	Depth to saturated zone	0.24
		Slope	0.01			Slope	0.01
691D:							
Beasley	90	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00	Slope	0.96	Hard to compact	1.00
		Slope	0.96			Depth to bedrock	1.00
						Slope	0.96
691F:							
Beasley	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
						Depth to bedrock	1.00
793F:							
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Gravel content	0.79
						Seepage	0.22
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
				Seepage	1.00		
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.63
						Seepage	0.22
793G:							
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Gravel content	0.79
						Seepage	0.22
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
				Seepage	1.00		

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
793G:							
Weikert-------------	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Gravel content	0.63
						Seepage	0.22
801B:							
Orthents, silty-----	90	Not limited		Not limited		Not limited	
802D:							
Orthents, loamy-----	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
802F:							
Orthents, loamy-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
834F:							
Wellston------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00				
Westmore------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00			Hard to compact	1.00
		Too clayey	0.50			Too clayey	0.50
864:							
Pits, quarries------	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel--------	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville----------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to cemented pan	1.00	Depth to cemented pan	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
		Depth to saturated zone	0.84	Depth to saturated zone	0.17	Too clayey	0.50
		Too clayey	0.50	Depth to bedrock	0.02	Depth to saturated zone	0.44
						Depth to bedrock	0.02
Westmore------------	45	Very limited		Somewhat limited		Very limited	
		Depth to bedrock	1.00	Slope	0.96	Hard to compact	1.00
		Slope	0.96			Slope	0.96
		Too clayey	0.50			Too clayey	0.50
955F:							
Muskingum-----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
				Seepage	1.00		
Berks---------------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Gravel content	0.79
						Seepage	0.22

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
955G:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to bedrock	1.00
				Seepage	1.00		
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Gravel content	0.79
						Seepage	0.22
977F:							
Wellston	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00				
Neotoma	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Seepage, bottom layer	1.00	Seepage	1.00	Large stones content	0.99
		Depth to bedrock	1.00			Seepage	0.52
		Large stones content	0.99				
986D:							
Wellston	50	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.96	Slope	0.96
		Slope	0.96				
Berks	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Slope	0.96
				Slope	0.96	Gravel content	0.79
		Slope	0.96			Seepage	0.22
986D2:							
Wellston	50	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Depth to bedrock	0.02	Depth to bedrock	0.02
Berks	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Slope	0.96
				Slope	0.96	Gravel content	0.83
		Slope	0.96			Seepage	0.52
986D3:							
Wellston	50	Very limited		Somewhat limited		Somewhat limited	
		Depth to bedrock	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Depth to bedrock	0.08	Depth to bedrock	0.08
Berks	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Slope	0.96
				Slope	0.96	Gravel content	0.83
		Slope	0.96			Seepage	0.52

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
986F:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00				
Berks	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Seepage	1.00	Depth to bedrock	1.00
		Seepage, bottom layer	1.00	Depth to bedrock	1.00	Gravel content	0.79
						Seepage	0.22
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00		
1843A:							
Bonnie	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00		
Petrolia	45	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
1846A:							
Karnak	55	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
Cape	35	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
3071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
3108A:							
Bonnie	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00		
3180A:							
Dupo	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
3288A:							
Petrolia	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
3331A:							
Haymond	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
3333A:							
Wakeland	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3334A:							
Birds	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00		
3382A:							
Belknap	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
3420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
3426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
7460A:							
Ginat	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40	Too clayey	0.50
		Flooding	0.40				
7462A:							
Sciotoville	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
		Depth to saturated zone	0.95	Flooding	0.40	Seepage	0.52
		Flooding	0.40				
7462B:							
Sciotoville	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
		Depth to saturated zone	0.95	Flooding	0.40	Seepage	0.52
		Flooding	0.40				
7462C2:							
Scitotville	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
		Depth to saturated zone	0.95	Flooding	0.40	Seepage	0.52
		Flooding	0.40	Slope	0.01	Slope	0.01
		Slope	0.01				
7462C3:							
Sciotoville	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Depth to saturated zone	0.44	Depth to saturated zone	0.68
		Depth to saturated zone	0.95	Flooding	0.40	Seepage	0.52
		Flooding	0.40	Slope	0.01	Slope	0.01
		Slope	0.01				
7462D2:							
Sciotoville	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Slope	0.96	Slope	0.96
		Slope	0.96	Depth to saturated zone	0.44	Depth to saturated zone	0.68
		Depth to saturated zone	0.95	Flooding	0.40	Seepage	0.52
		Flooding	0.40				
7463B:							
Wheeling	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Flooding	0.40	Too clayey	0.50
		Too clayey	0.50				
		Flooding	0.40				

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill: Rating class and limiting features	Value	Area sanitary landfill: Rating class and limiting features	Value	Daily cover for landfill: Rating class and limiting features	Value
7463C2:							
Wheeling------------	95	Very limited		Somewhat limited		Somewhat limited	
		Seepage, bottom layer	1.00	Flooding	0.40	Too clayey	0.50
		Too clayey	0.50	Slope	0.01	Slope	0.01
		Flooding	0.40				
		Slope	0.01				
7711A:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40		
		Flooding	0.40				
7711B:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40		
		Flooding	0.40				
7711B2:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Too clayey	0.50	Flooding	0.40		
		Flooding	0.40				
8071A:							
Darwin--------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
8072A:							
Sharon--------------	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
8108A:							
Bonnie--------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00		
8180A:							
Dupo----------------	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
8331A:							
Haymond-------------	90	Very limited		Very limited		Not limited	
		Flooding	1.00	Flooding	1.00		

Table 16.—Sanitary Facilities, Part II—Continued

Map symbol and soil name	Pct. of map unit	Trench sanitary landfill		Area sanitary landfill		Daily cover for landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8333A:							
Wakeland	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
8382A:							
Belknap	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
8420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	0.50
		Too clayey	0.50				
8426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Ponding	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Too clayey	1.00
		Too clayey	1.00			Hard to compact	1.00
8427B:							
Burnside	90	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Large stones content	0.04
		Depth to bedrock	1.00	Depth to bedrock	0.02	Depth to bedrock	0.02
		Large stones content	0.04				
8787A:							
Banlic	90	Very limited		Very limited		Very limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
W:							
Water	100	Not rated		Not rated		Not rated	

Table 17.—Construction Materials, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The ratings given for the thickest layer are for the thickest layer above and excluding the bottom layer. The numbers in the value columns range from 0.00 to 0.99. The greater the value, the greater the likelihood that the bottom layer or thickest layer of the soil is a source of sand or gravel. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
79B:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79C2:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79C3:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79D2:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79D3:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79E2:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79E3:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
79F:					
Menfro	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
99G:					
Sandstone Rock Land	45	Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated	
164A:					
Stoy	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
164B:					
Stoy----------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
175A:					
Lamont--------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.04
175B:					
Lamont--------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.03
		Thickest layer	0.00	Bottom layer	0.04
175C2:					
Lamont--------------	90	Poor		Fair	
		Bottom layer	0.00	Thickest layer	0.00
		Thickest layer	0.00	Bottom layer	0.04
214B:					
Hosmer--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
214C2:					
Hosmer--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
214C3:					
Hosmer--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
214D2:					
Hosmer--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
214D3:					
Hosmer--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
301B:					
Grantsburg----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
301C2:					
Grantsburg----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
301C3:					
Grantsburg----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
301D2:					
Grantsburg----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
301D3:					
Grantsburg----------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
335B:					
Robbs---------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
339C:					
Wellston------------	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
339D:					
Wellston------------	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
339D2:					
Wellston------------	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
339F:					
Wellston------------	90	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
340C2:					
Zanesville----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
340C3:					
Zanesville----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
340D:					
Zanesville----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
340D2:					
Zanesville----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
340D3:					
Zanesville----------	90	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
477C2:					
Winfield------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
691D:					
Beasley-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
691F:					
Beasley-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
793F:					
Berks---------------	40	Fair		Poor	
		Thickest layer	0.16	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
Muskingum-----------	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Weikert-------------	15	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.24	Thickest layer	0.00
793G:					
Berks---------------	40	Fair		Poor	
		Thickest layer	0.16	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
Muskingum-----------	35	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Weikert-------------	15	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.24	Thickest layer	0.00
801B:					
Orthents, silty-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
802D:					
Orthents, loamy-----	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
802F:					
Orthents, loamy-----	85	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
834F:					
Wellston------------	55	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
834F:					
Westmore	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
864:					
Pits, quarries	90	Not rated		Not rated	
865:					
Pits, gravel	90	Not rated		Not rated	
940D2:					
Zanesville	45	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Westmore	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
955F:					
Muskingum	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Berks	40	Fair		Poor	
		Thickest layer	0.16	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
955G:					
Muskingum	55	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
Berks	40	Fair		Poor	
		Thickest layer	0.16	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
977F:					
Wellston	45	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
Neotoma	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
986D:					
Wellston	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
Berks	40	Fair		Poor	
		Thickest layer	0.16	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
986D2:					
Wellston------------	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
Berks---------------	40	Fair		Poor	
		Thickest layer	0.14	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
986D3:					
Wellston------------	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
Berks---------------	40	Fair		Poor	
		Thickest layer	0.07	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
986F:					
Wellston------------	50	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.08	Thickest layer	0.00
Berks---------------	40	Fair		Poor	
		Thickest layer	0.16	Bottom layer	0.00
		Bottom layer	0.39	Thickest layer	0.00
1334A:					
Birds---------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
1843A:					
Bonnie--------------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Petrolia------------	45	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
1846A:					
Karnak--------------	55	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
Cape----------------	35	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3071A:					
Darwin--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3108A:					
Bonnie--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel: Rating class	Value	Potential source of sand: Rating class	Value
3180A:					
Dupo	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3288A:					
Petrolia	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3331A:					
Haymond	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3333A:					
Wakeland	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3334A:					
Birds	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3382A:					
Belknap	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3420A:					
Piopolis	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
3426A:					
Karnak	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7460A:					
Ginat	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7462A:					
Sciotoville	95	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
7462B:					
Sciotoville	95	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
7462C2:					
Sciotoville	95	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
7462C3:					
Sciotoville---------	95	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
7462D2:					
Sciotoville---------	95	Poor		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.00	Thickest layer	0.00
7463B:					
Wheeling------------	95	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.20	Thickest layer	0.00
7463C2:					
Wheeling------------	95	Fair		Poor	
		Thickest layer	0.00	Bottom layer	0.00
		Bottom layer	0.20	Thickest layer	0.00
7711A:					
Hatfield------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7711B:					
Hatfield------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
7711B2:					
Hatfield------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8071A:					
Darwin--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8072A:					
Sharon--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8108A:					
Bonnie--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8180A:					
Dupo----------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8331A:					
Haymond-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00

Table 17.—Construction Materials, Part I—Continued

Map symbol and soil name	Pct. of map unit	Potential source of gravel		Potential source of sand	
		Rating class	Value	Rating class	Value
8333A:					
Wakeland------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8382A:					
Belknap-------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8420A:					
Piopolis------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8426A:					
Karnak--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8427B:					
Burnside------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
8787A:					
Banlic--------------	90	Poor		Poor	
		Bottom layer	0.00	Bottom layer	0.00
		Thickest layer	0.00	Thickest layer	0.00
W:					
Water---------------	100	Not rated		Not rated	

Table 17.—Construction Materials, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
79B:							
Menfro---------------	90	Fair		Poor		Good	
		Organic matter content low	0.12	Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.87		
		Too acid	0.97				
79C2:							
Menfro---------------	90	Fair		Poor		Good	
		Organic matter content low	0.12	Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.87		
		Too acid	0.97				
79C3:							
Menfro---------------	90	Fair		Poor		Good	
		Organic matter content low	0.12	Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.89		
		Too acid	0.97				
79D2:							
Menfro---------------	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.04
		Water erosion	0.90	Shrink-swell	0.87		
		Too acid	0.97				
79D3:							
Menfro---------------	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.04
		Water erosion	0.90	Shrink-swell	0.89		
		Too acid	0.97				
79E2:							
Menfro-------=------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.00
				Slope	0.18		
		Water erosion	0.90	Shrink-swell	0.87		
		Too acid	0.97				
79E3:							
Menfro---------------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Low strength	0.00	Slope	0.00
				Slope	0.18		
		Water erosion	0.90	Shrink-swell	0.89		
		Too acid	0.97				

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
79F:							
Menfro	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Low strength	0.00		
		Water erosion	0.90	Shrink-swell	0.87		
		Too acid	0.97				
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Fair		Poor		Fair	
		Organic matter content low	0.08	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too clayey	0.64
		Too acid	0.32	Shrink-swell	0.99	Too acid	0.88
		Water erosion	0.90				
		Too clayey	0.98				
164B:							
Stoy	90	Fair		Poor		Fair	
		Organic matter content low	0.08	Low strength	0.00	Wetness depth	0.53
				Wetness depth	0.53	Too clayey	0.64
		Too acid	0.32	Shrink-swell	0.99	Too acid	0.88
		Water erosion	0.90				
		Too clayey	0.98				
175A:							
Lamont	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content low	0.12				
		Too acid	0.84				
175B:							
Lamont	90	Poor		Good		Poor	
		Too sandy	0.00			Too sandy	0.00
		Organic matter content low	0.12				
		Too acid	0.84				
175C2:							
Lamont	90	Fair		Good		Good	
		Organic matter content low	0.12				
		Too acid	0.97				
214B:							
Hosmer	90	Fair		Poor		Fair	
		Too acid	0.32	Depth to cemented pan	0.00	Depth to cemented pan	0.36
		Depth to cemented pan	0.36	Low strength	0.22	Too acid	0.88
		Organic matter content low	0.50	Shrink-swell	0.87	Wetness depth	0.91
		Water erosion	0.90	Wetness depth	0.91		
		Droughty	0.99				

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
214C2:							
Hosmer	90	Fair		Poor		Fair	
		Depth to cemented pan	0.14	Depth to cemented pan	0.00	Depth to cemented pan	0.14
		Too acid	0.32	Low strength	0.22	Too acid	0.88
		Organic matter content low	0.50	Shrink-swell	0.87	Wetness depth	0.91
		Droughty	0.84	Wetness depth	0.91		
		Water erosion	0.90				
214C3:							
Hosmer	90	Fair		Poor		Fair	
		Depth to cemented pan	0.05	Depth to cemented pan	0.00	Depth to cemented pan	0.05
		Too acid	0.32	Low strength	0.22	Too acid	0.88
		Organic matter content low	0.50	Shrink-swell	0.87	Wetness depth	0.91
		Droughty	0.62	Wetness depth	0.91		
		Water erosion	0.90				
214D2:							
Hosmer	90	Fair		Poor		Fair	
		Depth to cemented pan	0.14	Depth to cemented pan	0.00	Slope	0.04
		Too acid	0.32	Low strength	0.22	Depth to cemented pan	0.14
		Organic matter content low	0.50	Shrink-swell	0.87	Too acid	0.88
		Droughty	0.84	Wetness depth	0.91	Wetness depth	0.91
		Water erosion	0.90				
214D3:							
Hosmer	90	Fair		Poor		Fair	
		Depth to cemented pan	0.05	Depth to cemented pan	0.00	Slope	0.04
		Too acid	0.32	Low strength	0.22	Depth to cemented pan	0.05
		Organic matter content low	0.50	Shrink-swell	0.87	Too acid	0.88
		Droughty	0.62	Wetness depth	0.91	Wetness depth	0.91
		Water erosion	0.90				
301B:							
Grantsburg	90	Fair		Poor		Fair	
		Organic matter content low	0.02	Depth to cemented pan	0.00	Too acid	0.59
		Too acid	0.12	Low strength	0.00	Wetness depth	0.91
		Water erosion	0.90	Shrink-swell	0.89	Depth to cemented pan	0.99
		Depth to cemented pan	0.99	Wetness depth	0.91		
301C2:							
Grantsburg	90	Fair		Poor		Fair	
		Organic matter content low	0.02	Depth to cemented pan	0.00	Too acid	0.59
		Too acid	0.12	Shrink-swell	0.87	Depth to cemented pan	0.90
		Water erosion	0.90	Wetness depth	0.91	Wetness depth	0.91
		Depth to cemented pan	0.90				
		Droughty	0.99				

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material		Potential source of roadfill		Potential source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
301C3:							
Grantsburg----------	90	Fair		Poor		Fair	
		Too acid	0.12	Depth to cemented pan	0.00	Too acid	0.59
		Organic matter content low	0.18	Shrink-swell	0.87	Depth to cemented pan	0.80
		Depth to cemented pan	0.80	Wetness depth	0.91	Wetness depth	0.91
		Droughty	0.88				
		Water erosion	0.90				
301D2:							
Grantsburg----------	90	Fair		Poor		Fair	
		Organic matter content low	0.02	Depth to cemented pan	0.00	Slope	0.04
		Too acid	0.12	Shrink-swell	0.87	Too acid	0.59
		Water erosion	0.90	Wetness depth	0.91	Depth to cemented pan	0.90
		Depth to cemented pan	0.90			Wetness depth	0.91
		Droughty	0.99				
301D3:							
Grantsburg----------	90	Fair		Poor		Fair	
		Too acid	0.12	Depth to cemented pan	0.00	Slope	0.04
		Organic matter content low	0.18	Shrink-swell	0.87	Too acid	0.59
		Depth to cemented pan	0.80	Wetness depth	0.91	Depth to cemented pan	0.80
		Droughty	0.88			Wetness depth	
		Water erosion	0.90				
335B:							
Robbs---------------	90	Fair		Fair		Fair	
		Organic matter content low	0.02	Wetness depth	0.53	Wetness depth	0.53
		Too acid	0.32	Shrink-swell	0.97	Too acid	0.88
		Water erosion	0.90				
339C:							
Wellston------------	90	Fair		Poor		Fair	
		Too acid	0.54	Low strength	0.00	Hard to reclaim (rock fragments)	0.32
		Organic matter content low	0.88			Rock fragments	0.97
		Water erosion	0.90			Too acid	0.98
339D:							
Wellston------------	90	Fair		Good		Fair	
		Too acid	0.54			Slope	0.04
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
339D2:							
Wellston------------	90	Fair		Fair		Fair	
		Too acid	0.54	Depth to bedrock	0.98	Slope	0.04
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
339F:							
Wellston------------	90	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
340C2:							
Zanesville----------	90	Poor		Poor		Poor	
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to cemented pan	0.00
		Droughty	0.17	Wetness depth	0.91	Wetness depth	0.91
		Too acid	0.54	Depth to bedrock	0.98	Too acid	0.98
		Water erosion	0.90				
340C3:							
Zanesville----------	90	Poor		Poor		Poor	
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to cemented pan	0.00
		Droughty	0.05	Wetness depth	0.91	Wetness depth	0.91
		Organic matter content low	0.08	Depth to bedrock	0.92	Too acid	0.98
		Too acid	0.54				
		Water erosion	0.90				
340D:							
Zanesville----------	90	Fair		Poor		Fair	
		Depth to cemented pan	0.03	Depth to cemented pan	0.00	Depth to cemented pan	0.03
		Droughty	0.53	Wetness depth	0.91	Slope	0.04
		Too acid	0.54			Wetness depth	0.91
		Water erosion	0.90			Too acid	0.98
340D2:							
Zanesville----------	90	Poor		Poor		Poor	
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to cemented pan	0.00
		Droughty	0.17	Wetness depth	0.91	Slope	0.04
		Too acid	0.54	Depth to bedrock	0.98	Wetness depth	0.91
		Water erosion	0.90			Too acid	0.98
340D3:							
Zanesville----------	90	Poor		Poor		Poor	
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to cemented pan	0.00
		Droughty	0.05	Wetness depth	0.91	Slope	0.04
		Organic matter content low	0.08	Depth to bedrock	0.92	Wetness depth	0.91
		Too acid	0.54			Too acid	0.98
		Water erosion	0.90				
477C2:							
Winfield------------	90	Fair		Poor		Fair	
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.98
		Too acid	0.68	Shrink-swell	0.93		
		Water erosion	0.99	Wetness depth	0.98		

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
691D:							
Beasley	90	Poor		Poor		Poor	
		Too clayey	0.00	Depth to bedrock	0.00	Too clayey	0.00
		Organic matter content low	0.18	Shrink-swell	0.87	Slope	0.04
						Rock fragments	0.28
		Too acid	0.88				
		Water erosion	0.90				
		Droughty	0.99				
691F:							
Beasley	90	Poor		Poor		Poor	
		Too clayey	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.18	Depth to bedrock	0.00	Too clayey	0.00
				Shrink-swell	0.87	Rock fragments	0.28
		Too acid	0.88				
		Water erosion	0.90				
		Droughty	0.99				
793F:							
Berks	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
						Depth to bedrock	0.35
		Depth to bedrock	0.35			Too acid	0.98
		Too acid	0.54				
Muskingum	35	Fair		Poor		Poor	
		Organic matter content low	0.12	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Rock fragments	0.72
		Too acid	0.50			Depth to bedrock	0.84
		Droughty	0.56			Too acid	0.98
		Depth to bedrock	0.84				
Weikert	15	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.12			Depth to bedrock	0.00
						Too acid	0.98
		Too acid	0.54				
793G:							
Berks	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
						Depth to bedrock	0.35
		Depth to bedrock	0.35			Too acid	0.98
		Too acid	0.54				
Muskingum	35	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.00	Rock fragments	0.72
		Too acid	0.50			Depth to bedrock	0.84
		Droughty	0.56			Too acid	0.98
		Depth to bedrock	0.84				
Weikert	15	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Depth to bedrock	0.00	Slope	0.00	Rock fragments	0.00
		Organic matter content low	0.12			Depth to bedrock	0.00
						Too acid	0.98
		Too acid	0.54				

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
801B:							
Orthents, silty	90	Fair		Poor		Good	
		Organic matter content low	0.12	Low strength	0.00		
		Too acid	0.84	Shrink-swell	0.87		
		Water erosion	0.90				
802D:							
Orthents, loamy	90	Fair		Poor		Fair	
		Organic matter content low	0.50	Low strength	0.00	Slope	0.63
		Water erosion	0.90	Shrink-swell	0.87		
802F:							
Orthents, loamy	85	Fair		Poor		Poor	
		Organic matter content low	0.50	Low strength	0.00	Slope	0.00
				Slope	0.00		
		Water erosion	0.90	Shrink-swell	0.87		
834F:							
Wellston	55	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
Westmore	35	Fair		Poor		Poor	
		Too clayey	0.02	Low strength	0.00	Slope	0.00
		Organic matter content low	0.24	Slope	0.00	Too clayey	0.01
				Shrink-swell	0.28	Rock fragments	0.50
		Too acid	0.54			Hard to reclaim (rock fragments)	0.95
		Water erosion	0.90				
864:							
Pits, quarries	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville	45	Poor		Poor		Poor	
		Depth to cemented pan	0.00	Depth to cemented pan	0.00	Depth to cemented pan	0.00
		Droughty	0.17	Wetness depth	0.91	Slope	0.04
		Too acid	0.54	Depth to bedrock	0.98	Wetness depth	0.91
		Water erosion	0.90			Too acid	0.98
Westmore	45	Fair		Poor		Fair	
		Too clayey	0.02	Low strength	0.00	Too clayey	0.01
		Organic matter content low	0.24	Shrink-swell	0.23	Slope	0.04
						Rock fragments	0.50
		Too acid	0.54			Hard to reclaim (rock fragments)	0.95
		Water erosion	0.90				

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
955F:							
Muskingum-----------	55	Fair		Poor		Poor	
		Organic matter content low	0.12	Depth to bedrock	0.00	Slope	0.00
				Slope	0.00	Rock fragments	0.72
		Too acid	0.50			Depth to bedrock	0.84
		Droughty	0.56			Too acid	0.98
		Depth to bedrock	0.84				
Berks---------------	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
						Depth to bedrock	0.35
		Depth to bedrock	0.35			Too acid	0.98
		Too acid	0.54				
955G:							
Muskingum-----------	55	Fair		Poor		Poor	
		Organic matter content low	0.12	Slope	0.00	Slope	0.00
				Depth to bedrock	0.00	Rock fragments	0.72
		Too acid	0.50			Depth to bedrock	0.84
		Droughty	0.56			Too acid	0.98
		Depth to bedrock	0.84				
Berks---------------	40	Poor		Poor		Poor	
		Droughty	0.00	Slope	0.00	Slope	0.00
		Organic matter content low	0.12	Depth to bedrock	0.00	Rock fragments	0.00
						Depth to bedrock	0.35
		Depth to bedrock	0.35			Too acid	0.98
		Too acid	0.54				
977F:							
Wellston------------	45	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
Neotoma-------------	45	Fair		Poor		Poor	
		Cobble content	0.01	Slope	0.00	Slope	0.00
		Organic matter content low	0.02	Cobble content	0.00	Hard to reclaim (rock fragments)	0.00
		Too acid	0.50			Rock fragments	0.00
						Too acid	0.92
986D:							
Wellston------------	50	Fair		Good		Fair	
		Too acid	0.54			Slope	0.04
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
Berks---------------	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12			Slope	0.04
						Depth to bedrock	0.35
		Depth to bedrock	0.35			Too acid	0.98
		Too acid	0.54				

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
986D2:							
Wellston	50	Fair		Fair		Fair	
		Too acid	0.54	Depth to bedrock	0.98	Slope	0.04
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
Berks	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Organic matter content low	0.12			Slope	0.04
						Depth to bedrock	0.16
		Depth to bedrock	0.16			Too acid	0.98
		Too acid	0.54				
986D3:							
Wellston	50	Fair		Fair		Fair	
		Too acid	0.54	Depth to bedrock	0.92	Slope	0.04
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
Berks	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Rock fragments	0.00
		Depth to bedrock	0.05			Slope	0.04
		Organic matter content low	0.12			Depth to bedrock	0.05
						Too acid	0.98
		Too acid	0.54				
986F:							
Wellston	50	Fair		Poor		Poor	
		Too acid	0.54	Slope	0.00	Slope	0.00
		Organic matter content low	0.88			Hard to reclaim (rock fragments)	0.32
		Water erosion	0.90			Rock fragments	0.97
						Too acid	0.98
Berks	40	Poor		Poor		Poor	
		Droughty	0.00	Depth to bedrock	0.00	Slope	0.00
		Organic matter content low	0.12	Slope	0.00	Rock fragments	0.00
						Depth to bedrock	0.35
		Depth to bedrock	0.35			Too acid	0.98
		Too acid	0.54				
1334A:							
Birds	90	Fair		Poor		Poor	
		Water erosion	0.68	Wetness depth	0.00	Wetness depth	0.00
1843A:							
Bonnie	45	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50	Low strength	0.00	Too acid	0.88
		Water erosion	0.68				
Petrolia	45	Fair		Poor		Poor	
		Organic matter content low	0.68	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00	Too clayey	0.67
		Too clayey	0.98	Shrink-swell	0.87		

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
1846A:							
Karnak	55	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.00
				Shrink-swell	0.12		
		Too acid	0.84				
Cape	35	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Wetness depth	0.00
		Too acid	0.50	Low strength	0.00	Too clayey	0.00
		Organic matter content low	0.50	Shrink-swell	0.28	Too acid	0.59
3071A:							
Darwin	90	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
				Low strength	0.00	Wetness depth	0.00
				Shrink-swell	0.00		
3108A:							
Bonnie	90	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50	Low strength	0.00	Too acid	0.88
		Water erosion	0.68				
3180A:							
Dupo	90	Fair		Poor		Fair	
		Water erosion	0.68	Low strength	0.00	Wetness depth	0.03
		Organic matter content low	0.68	Wetness depth	0.03		
				Shrink-swell	0.61		
3288A:							
Petrolia	90	Fair		Poor		Poor	
		Organic matter content low	0.68	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00	Too clayey	0.67
		Too clayey	0.98	Shrink-swell	0.87		
3331A:							
Haymond	90	Fair		Good		Good	
		Water erosion	0.68				
3333A:							
Wakeland	90	Fair		Fair		Fair	
		Organic matter content low	0.50	Wetness depth	0.04	Wetness depth	0.04
		Water erosion	0.68				
3334A:							
Birds	90	Fair		Poor		Poor	
		Water erosion	0.68	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00		
3382A:							
Belknap	90	Fair		Fair		Fair	
		Too acid	0.46	Wetness depth	0.04	Wetness depth	0.04
		Water erosion	0.68			Too acid	0.95

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
3420A:							
Piopolis------------	90	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Too clayey	0.92	Low strength	0.00	Too clayey	0.72
				Shrink-swell	0.87	Too acid	0.88
3426A:							
Karnak--------------	90	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
		Organic matter content low	0.12	Shrink-swell	0.12	Wetness depth	0.00
		Too acid	0.84				
7460A:							
Ginat---------------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00		
		Too acid	0.32				
		Water erosion	0.90				
7462A:							
Sciotoville---------	95	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.76	Wetness depth	0.76
						Too acid	0.88
		Too acid	0.32			Hard to reclaim (rock fragments)	0.95
		Water erosion	0.99				
7462B:							
Sciotoville---------	95	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.76	Wetness depth	0.76
						Too acid	0.88
		Too acid	0.32			Hard to reclaim (rock fragments)	0.95
		Water erosion	0.99				
7462C2:							
Sciotoville---------	95	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.76	Wetness depth	0.76
						Hard to reclaim (rock fragments)	0.95
		Too acid	0.32				
		Water erosion	0.99			Too acid	0.98
7462C3:							
Sciotoville---------	95	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.76	Wetness depth	0.76
						Hard to reclaim (rock fragments)	0.95
		Too acid	0.32				
		Water erosion	0.99			Too acid	0.98
7462D2:							
Sciotoville---------	95	Fair		Fair		Fair	
		Organic matter content low	0.12	Wetness depth	0.76	Slope	0.04
						Wetness depth	0.76
		Too acid	0.32			Hard to reclaim (rock fragments)	0.95
		Water erosion	0.99				
						Too acid	0.98

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
7463B:							
Wheeling------------	95	Fair		Good		Poor	
		Organic matter content low	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.74			Rock fragments	0.88
7463C2:							
Wheeeling-----------	95	Fair		Good		Poor	
		Organic matter content low	0.12			Hard to reclaim (rock fragments)	0.00
		Too acid	0.74			Rock fragments	0.88
7711A:							
Hatfield------------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00	Too acid	0.88
		Too acid	0.32				
		Water erosion	0.90				
7711B:							
Hatfield------------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00	Too acid	0.88
		Too acid	0.32				
		Water erosion	0.90				
7711B2:							
Hatfield------------	90	Fair		Poor		Poor	
		Organic matter content low	0.12	Wetness depth	0.00	Wetness depth	0.00
				Low strength	0.00	Too acid	0.88
		Too acid	0.32				
		Water erosion	0.90				
8071A:							
Darwin--------------	90	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
				Low strength	0.00	Wetness depth	0.00
				Shrink-swell	0.00		
8072A:							
Sharon--------------	90	Fair		Good		Fair	
		Organic matter content low	0.24			Too acid	0.88
		Too acid	0.32				
		Water erosion	0.68				
8108A:							
Bonnie--------------	90	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Organic matter content low	0.50	Low strength	0.00	Too acid	0.88
		Water erosion	0.68				
8180A:							
Dupo----------------	90	Fair		Poor		Fair	
		Water erosion	0.68	Low strength	0.00	Wetness depth	0.03
		Organic matter content low	0.68	Wetness depth	0.03		
				Shrink-swell	0.61		

Table 17.—Construction Materials, Part II—Continued

Map symbol and soil name	Pct. of map unit	Potential source of reclamation material: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
8331A:							
Haymond	90	Fair		Good		Good	
		Water erosion	0.68				
8333A:							
Wakeland	90	Fair		Fair		Fair	
		Organic matter content low	0.50	Wetness depth	0.04	Wetness depth	0.04
		Water erosion	0.68				
8382A:							
Belknap	90	Fair		Fair		Fair	
		Too acid	0.46	Wetness depth	0.04	Wetness depth	0.04
		Water erosion	0.68			Too acid	0.95
8420A:							
Piopolis	90	Fair		Poor		Poor	
		Too acid	0.50	Wetness depth	0.00	Wetness depth	0.00
		Too clayey	0.92	Low strength	0.00	Too clayey	0.72
				Shrink-swell	0.87	Too acid	0.88
8426A:							
Karnak	90	Poor		Poor		Poor	
		Too clayey	0.00	Wetness depth	0.00	Too clayey	0.00
		Organic matter content low	0.12	Low strength	0.00	Wetness depth	0.00
				Shrink-swell	0.12		
		Too acid	0.84				
8427B:							
Burnside	90	Fair		Fair		Poor	
		Too acid	0.50	Cobble content	0.75	Rock fragments	0.00
		Organic matter content low	0.50	Depth to bedrock	0.98	Hard to reclaim (rock fragments)	0.00
		Cobble content	0.99			Too acid	0.88
8787A:							
Banlic	90	Fair		Fair		Fair	
		Organic matter content low	0.18	Wetness depth	0.04	Wetness depth	0.04
		Too acid	0.32			Too acid	0.88
		Water erosion	0.68				
W:							
Water	100	Not rated		Not rated		Not rated	

Table 18.—Water Management, Part I

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B:							
Menfro	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.03	Depth to water	1.00
		Slope	0.08				
79C2:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.04	Depth to water	1.00
		Seepage	0.72				
79C3:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.05	Depth to water	1.00
		Seepage	0.72				
79D2:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.04	Depth to water	1.00
		Seepage	0.72				
79D3:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.05	Depth to water	1.00
		Seepage	0.72				
79E2:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.04	Depth to water	1.00
		Seepage	0.72				
79E3:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.05	Depth to water	1.00
		Seepage	0.72				
79F:							
Menfro	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.03	Depth to water	1.00
		Seepage	0.72				
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Depth to water	1.00
				Piping	0.01		

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
164B:							
Stoy----------------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.08	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	0.01		
175A:							
Lamont--------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.04	Depth to water	1.00
175B:							
Lamont--------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.04	Depth to water	1.00
		Slope	0.08				
175C2:							
Lamont--------------	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.04	Depth to water	1.00
		Slope	1.00				
214B:							
Hosmer--------------	90	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.91	Piping	1.00	Depth to water	1.00
		Seepage	0.72	Thin layer	0.91		
		Slope	0.08	Depth to saturated zone	0.84		
214C2:							
Hosmer--------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.97	Thin layer	0.97		
		Seepage	0.72	Depth to saturated zone	0.84		
214C3:							
Hosmer--------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.99	Thin layer	0.99		
		Seepage	0.72	Depth to saturated zone	0.84		
214D2:							
Hosmer--------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.97	Thin layer	0.97		
		Seepage	0.72	Depth to saturated zone	0.84		
214D3:							
Hosmer--------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.99	Thin layer	0.99		
		Seepage	0.72	Depth to saturated zone	0.84		
301B:							
Grantsburg----------	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.84	Depth to water	1.00
		Depth to cemented pan	0.56	Piping	0.60		
		Slope	0.08	Thin layer	0.56		

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
301C2:							
Grantsburg----------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.84	Depth to water	1.00
		Seepage	0.72	Thin layer	0.70		
		Depth to cemented pan	0.70	Piping	0.50		
301C3:							
Grantsburg----------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.84	Depth to water	1.00
		Depth to cemented pan	0.77	Thin layer	0.77		
		Seepage	0.04	Piping	0.39		
301D2:							
Grantsburg----------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.84	Depth to water	1.00
		Seepage	0.72	Thin layer	0.70		
		Depth to cemented pan	0.70	Piping	0.50		
301D3:							
Grantsburg----------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Depth to saturated zone	0.84	Depth to water	1.00
		Depth to cemented pan	0.77	Thin layer	0.77		
		Seepage	0.04	Piping	0.39		
335B:							
Robbs---------------	90	Somewhat limited		Very limited		Very limited	
		Depth to cemented pan	0.95	Depth to saturated zone	1.00	Depth to water	1.00
		Seepage	0.54	Piping	0.32		
339C:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72				
339D:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72				
339D2:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72	Thin layer	0.01		
		Depth to bedrock	0.01				
339F:							
Wellston------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72				

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
340C2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Piping	0.93		
		Seepage	0.54	Depth to saturated zone	0.84		
		Depth to bedrock	0.01				
340C3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Piping	0.91		
		Seepage	0.54	Depth to saturated zone	0.84		
		Depth to bedrock	0.02				
340D:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to cemented pan	0.99	Piping	0.95		
		Seepage	0.72	Depth to saturated zone	0.84		
340D2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.93		
		Seepage	0.54	Depth to saturated zone	0.84		
		Depth to bedrock	0.01				
340D3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.91		
		Seepage	0.54	Depth to saturated zone	0.84		
		Depth to bedrock	0.02				
477C2:							
Winfield------------	90	Very limited		Somewhat limited		Somewhat limited	
		Slope	1.00	Depth to saturated zone	0.68	Slow refill	0.28
		Seepage	0.72	Piping	0.10	Depth to saturated zone	0.14
						Cutbanks cave	0.10
691D:							
Beasley-------------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.46	Depth to water	1.00
		Seepage	0.04	Hard to pack	0.04		
		Depth to bedrock	0.01				
691F:							
Beasley-------------	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.46	Depth to water	1.00
		Seepage	0.04	Hard to pack	0.04		
		Depth to bedrock	0.01				

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
793F:							
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.74		
		Depth to bedrock	0.74				
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	1.00				
793G:							
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.74		
		Depth to bedrock	0.74				
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
		Seepage	1.00				
801B:							
Orthents, silty	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.54	Piping	0.50	Depth to water	1.00
802D:							
Orthents, loamy	90	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.50	Depth to water	1.00
		Seepage	0.04				
802F:							
Orthents, loamy	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.50	Depth to water	1.00
		Seepage	0.04				
834F:							
Wellston	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72				
Westmore	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.06	Depth to water	1.00
		Seepage	0.72				
864:							
Pits, quarries	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel	90	Not rated		Not rated		Not rated	

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
940D2:							
Zanesville	45	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.93		
		Seepage	0.54	Depth to saturated zone	0.84		
		Depth to bedrock	0.01				
Westmore	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Hard to pack	0.09	Depth to water	1.00
		Seepage	0.44				
955F:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.74		
		Depth to bedrock	0.74				
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
955G:							
Muskingum	55	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	1.00	Thin layer	0.74		
		Depth to bedrock	0.74				
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
977F:							
Wellston	45	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.72				
Neotoma	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Large stones content	0.59	Depth to water	1.00
		Slope	1.00				
986D:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72				
Berks	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
986D2:							
Wellston	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72	Thin layer	0.01		
		Depth to bedrock	0.01				

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
986D2:							
Berks---------------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.96				
986D3:							
Wellston------------	50	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72	Thin layer	0.02		
		Depth to bedrock	0.02				
Berks---------------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.99				
986F:							
Wellston------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	0.99	Depth to water	1.00
		Seepage	0.72				
Berks---------------	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.91	Depth to water	1.00
		Slope	1.00				
		Depth to bedrock	0.91				
1334A:							
Birds---------------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.95		
1843A:							
Bonnie--------------	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.98		
Petrolia------------	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.13		
1846A:							
Karnak--------------	55	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.70		
Cape----------------	35	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.82		

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
3071A:							
Darwin	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.97		
3108A:							
Bonnie	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.98		
3180A:							
Dupo	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Hard to pack	0.32		
3288A:							
Petrolia	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.13		
3331A:							
Haymond	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
3333A:							
Wakeland	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	1.00		
3334A:							
Birds	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.96
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.95		
3382A:							
Belknap	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Depth to saturated zone	1.00	Slow refill	0.46
						Cutbanks cave	0.10
				Piping	1.00		
3420A:							
Piopolis	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
3426A:							
Karnak	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.70		
7460A:							
Ginat	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Depth to water	1.00
				Depth to saturated zone	1.00		
				Piping	0.07		
7462A:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Depth to saturated zone	0.95		
7462B:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	0.08	Depth to saturated zone	0.95		
7462C2:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Depth to saturated zone	0.95		
7462C3:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Depth to saturated zone	0.95		
7462D2:							
Sciotoville	95	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Slope	1.00	Depth to saturated zone	0.95		
7463B:							
Wheeling	95	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	0.08				
7463C2:							
Wheeling	95	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
		Slope	1.00				
7711A:							
Hatfield	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	0.45		

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes, and levees: Rating class and limiting features	Value	Aquifer-fed excavated ponds: Rating class and limiting features	Value
7711B:							
Hatfield------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
		Slope	0.08	Piping	0.45		
7711B2:							
Hatfield------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
		Slope	0.08	Piping	0.39		
8071A:							
Darwin--------------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.97		
8072A:							
Sharon--------------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to saturated zone	0.81
						Slow refill	0.28
						Cutbanks cave	0.10
8108A:							
Bonnie--------------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	0.98		
8180A:							
Dupo----------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Depth to water	1.00
				Hard to pack	0.32		
8331A:							
Haymond-------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
8333A:							
Wakeland------------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
8382A:							
Belknap-------------	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Depth to saturated zone	1.00	Slow refill	0.46
				Piping	1.00	Cutbanks cave	0.10
8420A:							
Piopolis------------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10

Table 18.—Water Management, Part I—Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8426A:							
Karnak--------------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Slow refill	1.00
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Hard to pack	0.70		
8427B:							
Burnside------------	90	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.01	Depth to water	1.00
		Depth to bedrock	0.01				
8787A:							
Banlic--------------	90	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Depth to saturated zone	1.00	Depth to water	1.00
				Piping	1.00		
W:							
Water---------------	100	Not rated		Not rated		Not rated	

Table 18.—Water Management, Part II

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
79B:							
Menfro	90	Somewhat limited		Very limited		Not limited	
		Slope	0.37	K factor	1.00		
				Slope	0.37		
79C2:							
Menfro	90	Very limited		Very limited		Not limited	
		Slope	1.00	K factor	1.00		
				Slope	1.00		
79C3:							
Menfro	90	Very limited		Very limited		Not limited	
		Slope	1.00	K factor	1.00		
				Slope	1.00		
79D2:							
Menfro	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
79D3:							
Menfro	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
79E2:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
79E3:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
79F:							
Menfro	90	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
99G:							
Sandstone Rock Land	45	Not rated		Not rated		Not rated	
Limestone Rock Land	40	Not rated		Not rated		Not rated	
164A:							
Stoy	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
164B:							
Stoy----------------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		
175A:							
Lamont--------------	90	Not limited		Somewhat limited		Very limited	
				K factor	0.12	Expect caving	1.00
175B:							
Lamont--------------	90	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Expect caving	1.00
				K factor	0.12		
175C2:							
Lamont--------------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Expect caving	1.00
				K factor	0.12		
214B:							
Hosmer--------------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	0.37		
214C2:							
Hosmer--------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
214C3:							
Hosmer--------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
214D2:							
Hosmer--------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
214D3:							
Hosmer--------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
301B:							
Grantsburg----------	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	0.37		
301C2:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
301C3:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
301D2:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00		
				Depth to saturated zone	1.00	Slope	0.96
301D3:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00		
				Depth to saturated zone	1.00	Slope	0.96
335B:							
Robbs---------------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.16	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.16		
339C:							
Wellston------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	K factor	1.00		
				Slope	1.00		
339D:							
Wellston------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
339D2:							
Wellston------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
339F:							
Wellston	90	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
340C2:							
Zanesville	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
		Depth to hard bedrock	0.02	Depth to saturated zone	1.00	Depth to hard bedrock	0.02
				Slope	1.00		
				Depth to hard bedrock	0.02		
340C3:							
Zanesville	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
340D:							
Zanesville	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
340D2:							
Zanesville	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
340D3:							
Zanesville	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
477C2:							
Winfield	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Depth to saturated zone	1.00		
				Slope	1.00		
691D:							
Beasley	90	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Expect caving	1.00
				Slope	1.00	Slope	0.96
						Too clayey	0.18
691F:							
Beasley	90	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00	Expect caving	1.00
						Too clayey	0.18

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
793F:							
Berks	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.33	K factor	0.50	Depth to soft bedrock	0.16
		Depth to soft bedrock	0.16	Content of large stones	0.33		
				Depth to soft bedrock	0.16		
Weikert	15	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
793G:							
Berks	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
Muskingum	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.33	K factor	0.50	Depth to soft bedrock	0.16
		Depth to soft bedrock	0.16	Content of large stones	0.33		
				Depth to soft bedrock	0.16		
Weikert	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
801B:							
Orthents, silty	90	Somewhat limited		Very limited		Not limited	
		Slope	0.16	K factor	1.00		
				Slope	0.16		
802D:							
Orthents, loamy	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Dense layer	0.50
				Slope	1.00	Slope	0.37

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
802F:							
Orthents, loamy-----	85	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00	Dense layer	0.50
834F:							
Wellston------------	55	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Westmore------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00	Expect caving	1.00
864:							
Pits, quarries------	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel--------	90	Not rated		Not rated		Not rated	
940D2:							
Zanesville----------	45	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	0.99
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
Westmore------------	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Expect caving	1.00
				Slope	1.00	Slope	0.96
955F:							
Muskingum-----------	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	0.33	K factor	0.50		
				Content of large stones	0.33		
Berks---------------	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
955G:							
Muskingum-----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.33	K factor	0.50	Depth to soft bedrock	0.16
		Depth to soft bedrock	0.16	Content of large stones	0.33		
				Depth to soft bedrock	0.16		

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
955G:							
Berks	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
977F:							
Wellston	45	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Neotoma	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	0.59
986D:							
Wellston	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
				Slope	1.00		
Berks	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	0.96
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
986D2:							
Wellston	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
		Depth to hard bedrock	0.02	Slope	1.00	Depth to hard bedrock	0.02
				Depth to hard bedrock	0.02		
Berks	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	0.96
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
986D3:							
Wellston	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	K factor	1.00	Slope	0.96
		Depth to hard bedrock	0.08	Slope	1.00	Depth to hard bedrock	0.08
				Depth to hard bedrock	0.08		

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
986D3:							
Berks---------------	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	0.96
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
986F:							
Wellston------------	50	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Slope	1.00
				Slope	1.00		
Berks---------------	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
				K factor	0.50		
1334A:							
Birds---------------	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70
1843A:							
Bonnie--------------	45	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70
Petrolia------------	45	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Frequent or very frequent flooding	0.70
1846A:							
Karnak--------------	55	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Too clayey	0.95
						Frequent or very frequent flooding	0.70

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
1846A:							
Cape	35	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Frequent or very frequent flooding	0.70
						Too clayey	0.02
3071A:							
Darwin	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.12	Frequent or very frequent flooding	0.70
						Too clayey	0.32
3108A:							
Bonnie	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70
3180A:							
Dupo	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70
						Too clayey	0.24
3288A:							
Petrolia	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Frequent or very frequent flooding	0.70
3331A:							
Haymond	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	K factor	1.00	Frequent or very frequent flooding	0.70
				Slope	0.04		
3333A:							
Wakeland	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
3334A:							
Birds	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70
3382A:							
Belknap	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Frequent or very frequent flooding	0.70
3420A:							
Piopolis	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Frequent or very frequent flooding	0.70
3426A:							
Karnak	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Too clayey	0.95
						Frequent or very frequent flooding	0.70
7460A:							
Ginat	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
7462A:							
Sciotoville	95	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
7462B:							
Sciotoville	95	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
7462C2:							
Sciotoville----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	1.00		
7462C3:							
Sciotoville----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	1.00		
7462D2:							
Sciotoville----------	95	Very limited		Very limited		Very limited	
		Slope	1.00	K factor	1.00	Depth to saturated zone	1.00
				Slope	1.00	Slope	0.96
				Depth to saturated zone	1.00		
7463B:							
Wheeling------------	95	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	K factor	0.88	Expect caving	1.00
				Slope	0.37		
7463C2:							
Wheeling------------	95	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Expect caving	1.00
				K factor	0.88		
7711A:							
Hatfield------------	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
7711B:							
Hatfield------------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		
7711B2:							
Hatfield------------	90	Somewhat limited		Very limited		Very limited	
		Slope	0.37	K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00		
				Slope	0.37		
8071A:							
Darwin--------------	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.12	Occasional flooding	0.40
						Too clayey	0.32

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains: Rating class and limiting features	Value	Constructing terraces and diversions: Rating class and limiting features	Value	Tile drains and underground outlets: Rating class and limiting features	Value
8072A:							
Sharon	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	K factor	1.00	Depth to saturated zone	0.60
				Slope	0.04	Occasional flooding	0.40
8108A:							
Bonnie	90	Not limited		Very limited		Very limited	
				K factor	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.40
8180A:							
Dupo	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.40
						Too clayey	0.24
8331A:							
Haymond	90	Somewhat limited		Very limited		Somewhat limited	
		Slope	0.04	K factor	1.00	Occasional flooding	0.40
				Slope	0.04		
8333A:							
Wakeland	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.40
8382A:							
Belknap	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.40
8420A:							
Piopolis	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.88	Occasional flooding	0.40
8426A:							
Karnak	90	Not limited		Very limited		Very limited	
				Ponding	1.00	Ponding	1.00
				Depth to saturated zone	1.00	Depth to saturated zone	1.00
				K factor	0.50	Too clayey	0.95
						Occasional flooding	0.40

Table 18.—Water Management, Part II—Continued

Map symbol and soil name	Pct. of map unit	Constructing grassed waterways and surface drains		Constructing terraces and diversions		Tile drains and underground outlets	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8427B:							
Burnside	90	Very limited		Very limited		Somewhat limited	
		Content of large stones	1.00	Content of large stones	1.00	Occasional flooding	0.40
		Slope	0.16	K factor	0.88	Depth to hard bedrock	0.02
		Depth to hard bedrock	0.02	Slope	0.16		
				Depth to hard bedrock	0.02		
8787A:							
Banlic	90	Not limited		Very limited		Very limited	
				K factor	1.00	Depth to saturated zone	1.00
				Depth to saturated zone	1.00	Occasional flooding	0.40
W:							
Water	100	Not rated		Not rated		Not rated	

Table 18.—Water Management, Part III

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
79B:							
Menfro----------------	90	Somewhat limited		Very limited		Not limited	
		Too acid	0.08	Slope	1.00		
		Slope	0.08	Water erosion	0.26		
79C2:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.10	Slope	1.00		
		Too acid	0.08	Slopes, sprinkler irrigation	0.10		
79C3:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.10	Slope	1.00		
		Too acid	0.08	Slopes, sprinkler irrigation	0.10		
79D2:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.08	Slopes, sprinkler irrigation	0.98		
79D3:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.08	Slopes, sprinkler irrigation	0.98		
79E2:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.08	Slope	1.00		
79E3:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.08	Slope	1.00		
79F:							
Menfro----------------	90	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.08	Slope	1.00		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods): Rating class and limiting features	Value	Sprinkler irrigation: Rating class and limiting features	Value	Drip or trickle irrigation: Rating class and limiting features	Value
99G:							
Sandstone Rock Land-	45	Not rated		Not rated		Not rated	
Limestone Rock Land-	40	Not rated		Not rated		Not rated	
164A:							
Stoy----------------	90	Very limited		Somewhat limited		Not limited	
		Percs slowly	1.00	Depth to saturated zone	0.99		
		Depth to saturated zone	0.99	Drains slowly	0.29		
		Too acid	0.22				
164B:							
Stoy----------------	90	Very limited		Very limited		Not limited	
		Percs slowly	1.00	Slope	1.00		
		Depth to saturated zone	0.99	Depth to saturated zone	0.99		
		Too acid	0.22	Drains slowly	0.29		
		Slope	0.08	Water erosion	0.26		
175A:							
Lamont--------------	90	Somewhat limited		Very limited		Not limited	
		Too acid	0.08	Wind erosion	1.00		
175B:							
Lamont--------------	90	Somewhat limited		Very limited		Not limited	
		Too acid	0.08	Wind erosion	1.00		
		Slope	0.08	Slope	1.00		
175C2:							
Lamont--------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Wind erosion	1.00		
		Slopes, sprinkler irrigation	0.10	Slope	1.00		
		Too acid	0.08	Water erosion	0.18		
				Slopes, sprinkler irrigation	0.10		
214B:							
Hosmer--------------	90	Somewhat limited		Very limited		Somewhat limited	
		Cemented pan	0.91	Slope	1.00	Cemented pan	0.91
		Depth to saturated zone	0.84	Cemented pan	1.00		
		Too acid	0.78	Depth to saturated zone	0.38		
		Slope	0.08	Water erosion	0.26		
		Droughty	0.01				
214C2:							
Hosmer--------------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.97
		Cemented pan	0.97	Slope	1.00		
		Depth to saturated zone	0.84	Cemented pan	1.00		
		Too acid	0.78	Depth to saturated zone	0.38		
		Droughty	0.18	Slopes, sprinkler irrigation	0.10		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
214C3:							
Hosmer	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.99
		Cemented pan	0.99	Slope	1.00		
		Depth to saturated zone	0.84	Cemented pan	1.00		
		Too acid	0.78	Depth to saturated zone	0.38		
		Droughty	0.43	Slopes, sprinkler irrigation	0.10		
214D2:							
Hosmer	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.97
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Cemented pan	0.97	Cemented pan	1.00		
		Depth to saturated zone	0.84	Slopes, sprinkler irrigation	0.98		
		Too acid	0.78	Depth to saturated zone	0.38		
214D3:							
Hosmer	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.99
		Cemented pan	0.99	Slope	1.00		
		Slopes, sprinkler irrigation	0.98	Cemented pan	1.00		
		Depth to saturated zone	0.84	Slopes, sprinkler irrigation	0.98		
		Too acid	0.78	Depth to saturated zone	0.38		
301B:							
Grantsburg	90	Somewhat limited		Very limited		Somewhat limited	
		Too acid	0.99	Slope	1.00	Cemented pan	0.56
		Depth to saturated zone	0.84	Depth to saturated zone	0.38		
		Cemented pan	0.56	Water erosion	0.26		
		Percs slowly	0.31	Too acid	0.14		
		Slope	0.08	Cemented pan	0.03		
301C2:							
Grantsburg	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.70
		Too acid	0.99	Slope	1.00		
		Depth to saturated zone	0.84	Cemented pan	0.39		
		Cemented pan	0.70	Depth to saturated zone	0.38		
		Percs slowly	0.31	Too acid	0.14		
301C3:							
Grantsburg	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.77
		Too acid	0.99	Slope	1.00		
		Depth to saturated zone	0.84	Cemented pan	0.74		
		Cemented pan	0.77	Depth to saturated zone	0.38		
		Percs slowly	0.31	Too acid	0.14		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
301D2:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.70
		Too acid	0.99	Slope	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Depth to saturated zone	0.84	Cemented pan	0.39		
		Cemented pan	0.70	Depth to saturated zone	0.38		
301D3:							
Grantsburg----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.77
		Too acid	0.99	Slope	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Depth to saturated zone	0.84	Cemented pan	0.74		
		Cemented pan	0.77	Depth to saturated zone	0.38		
335B:							
Robbs---------------	90	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.99	Cemented pan	1.00	Cemented pan	0.95
		Cemented pan	0.95	Slope	1.00		
		Too acid	0.92	Depth to saturated zone	0.99		
		Percs slowly	0.31	Water erosion	0.04		
		Droughty	0.25				
339C:							
Wellston------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Too acid	0.44	Slope	1.00		
		Slopes, sprinkler irrigation	0.10	Slopes, sprinkler irrigation	0.10		
339D:							
Wellston------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
339D2:							
Wellston------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
339F:							
Wellston------------	90	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.44	Slope	1.00		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
340C2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Cemented pan	1.00	Water erosion	1.00	Cemented pan	1.00
		Slope	1.00	Slope	1.00		
		Too acid	0.92	Cemented pan	1.00		
		Droughty	0.88	Depth to saturated zone	0.38		
		Depth to saturated zone	0.84	Low water-holding capacity	0.22		
340C3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Cemented pan	1.00	Water erosion	1.00	Cemented pan	1.00
		Slope	1.00	Slope	1.00		
		Droughty	0.98	Cemented pan	1.00		
		Too acid	0.92	Low water-holding capacity	0.46		
		Depth to saturated zone	0.84	Depth to saturated zone	0.38		
340D:							
Zanesville----------	90	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	0.99
		Cemented pan	0.99	Slope	1.00		
		Slopes, sprinkler irrigation	0.98	Cemented pan	1.00		
		Too acid	0.92	Slopes, sprinkler irrigation	0.98		
		Depth to saturated zone	0.84	Depth to saturated zone	0.38		
340D2:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	1.00
		Cemented pan	1.00	Slope	1.00		
		Slopes, sprinkler irrigation	0.98	Cemented pan	1.00		
		Too acid	0.92	Slopes, sprinkler irrigation	0.98		
		Droughty	0.88	Depth to saturated zone	0.38		
340D3:							
Zanesville----------	90	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	1.00
		Cemented pan	1.00	Slope	1.00		
		Droughty	0.98	Cemented pan	1.00		
		Slopes, sprinkler irrigation	0.98	Slopes, sprinkler irrigation	0.98		
		Too acid	0.92	Low water-holding capacity	0.46		
477C2:							
Winfield------------	90	Very limited		Very limited		Not limited	
		Slope	1.00	Slope	1.00		
		Depth to saturated zone	0.68	Water erosion	0.99		
		Slopes, sprinkler irrigation	0.10	Slopes, sprinkler irrigation	0.10		
				Depth to saturated zone	0.08		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
691D:							
Beasley	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.32	Slopes, sprinkler irrigation	0.98		
		Percs slowly	0.31				
		Droughty	0.01				
691F:							
Beasley	90	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.32	Slope	1.00		
		Percs slowly	0.31				
		Droughty	0.01				
793F:							
Berks	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Bedrock	0.65	Slope	1.00		
		Too acid	0.44	Low water-holding capacity	0.99		
Muskingum	35	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.92	Slope	1.00		
		Droughty	0.50	Depth to soft bedrock	0.61		
		Bedrock	0.16	Low water-holding capacity	0.01		
Weikert	15	Very limited		Very limited		Very limited	
		Bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00	Low water-holding capacity	1.00		
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.92	Slope	1.00		
793G:							
Berks	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Bedrock	0.65	Slope	1.00		
		Too acid	0.44	Low water-holding capacity	0.99		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods): Rating class and limiting features	Value	Sprinkler irrigation: Rating class and limiting features	Value	Drip or trickle irrigation: Rating class and limiting features	Value
793G:							
Muskingum	35	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.92	Slope	1.00		
		Droughty	0.50	Depth to soft bedrock	0.61		
		Bedrock	0.16				
				Low water-holding capacity	0.01		
Weikert	15	Very limited		Very limited		Very limited	
		Bedrock	1.00	Depth to hard bedrock	1.00	Depth to bedrock	1.00
		Droughty	1.00				
		Slopes, sprinkler irrigation	1.00	Low water-holding capacity	1.00		
		Slope	1.00	Slopes, sprinkler irrigation	1.00		
		Too acid	0.92				
				Water erosion	1.00		
				Slope	1.00		
801B:							
Orthents, silty	90	Somewhat limited		Very limited		Not limited	
		Too acid	0.44	Slope	1.00		
				Water erosion	0.04		
802D:							
Orthents, loamy	90	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.60	Slope	1.00		
				Slopes, sprinkler irrigation	0.60		
		Percs slowly	0.31				
802F:							
Orthents, loamy	85	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Percs slowly	0.31	Slope	1.00		
834F:							
Wellston	55	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.44	Slope	1.00		
Westmore	35	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Percs slowly	0.61	Slope	1.00		
		Too acid	0.08				
864:							
Pits, quarries	90	Not rated		Not rated		Not rated	
865:							
Pits, gravel	90	Not rated		Not rated		Not rated	

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
940D2:							
Zanesville----------	46	Very limited		Very limited		Very limited	
		Slope	1.00	Water erosion	1.00	Cemented pan	1.00
		Cemented pan	1.00	Slope	1.00		
		Slopes, sprinkler irrigation	0.98	Cemented pan	1.00		
		Too acid	0.92	Slopes, sprinkler irrigation	0.98		
		Droughty	0.88	Depth to saturated zone	0.38		
Westmore-----------	44	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Percs slowly	0.61	Slopes, sprinkler irrigation	0.98		
		Too acid	0.08				
955F:							
Muskingum-----------	55	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.92	Slope	1.00		
		Droughty	0.50	Depth to hard bedrock	0.61		
		Bedrock	0.16	Low water-holding capacity	0.01		
Berks---------------	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Bedrock	0.65	Slope	1.00		
		Too acid	0.44	Low water-holding capacity	0.99		
955G:							
Muskingum-----------	55	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.92	Slope	1.00		
		Droughty	0.50	Depth to hard bedrock	0.61		
		Bedrock	0.16	Low water-holding capacity	0.01		
Berks---------------	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Bedrock	0.65	Slope	1.00		
		Too acid	0.44	Low water-holding capacity	0.99		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
977F:							
Wellston	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.44	Slope	1.00		
Neotoma	45	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.44	Slope	1.00		
		Surface stones	0.12	Content of large stones	0.50		
		Droughty	0.02	Low water-holding capacity	0.03		
986D:							
Wellston	50	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
Berks	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Bedrock	0.65	Low water-holding capacity	0.99		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
986D2:							
Wellston	50	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
Berks	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Bedrock	0.84	Low water-holding capacity	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
986D3:							
Wellston	50	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
986D3:							
Berks	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Bedrock	0.95	Low water-holding capacity	1.00		
		Too acid	0.44	Slopes, sprinkler irrigation	0.98		
986F:							
Wellston	50	Very limited		Very limited		Not limited	
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Too acid	0.44	Slope	1.00		
Berks	40	Very limited		Very limited		Not limited	
		Droughty	1.00	Depth to hard bedrock	1.00		
		Slopes, sprinkler irrigation	1.00	Slopes, sprinkler irrigation	1.00		
		Slope	1.00	Water erosion	1.00		
		Bedrock	0.65	Slope	1.00		
		Too acid	0.44	Low water-holding capacity	0.99		
1334A:							
Birds	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Percs slowly	0.31				
1843A:							
Bonnie	46	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Percs slowly	0.31				
		Too acid	0.22				
Petrolia	44	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Percs slowly	0.31				

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
1846A:							
Karnak	55	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Frequent or very frequent flooding	0.70	Wetness	1.00
		Frequent or very frequent flooding	0.70	Drains slowly	0.59		
		Too acid	0.44				
Cape	35	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Drains slowly	0.99	Wetness	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70		
		Too acid	0.32	Too acid	0.14		
3071A:							
Darwin	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Drains slowly	0.99	Wetness	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70		
3108A:							
Bonnie	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Percs slowly	0.31				
		Too acid	0.22				
3180A:							
Dupo	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Frequent or very frequent flooding	0.70	Wetness	1.00
		Frequent or very frequent flooding	0.70	Drains slowly	0.29		
3288A:							
Petrolia	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Percs slowly	0.31				

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
3331A:							
Haymond	90	Somewhat limited		Somewhat limited		Very limited	
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Flooding	1.00
				Slope	0.50		
3333A:							
Wakeland	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
3334A:							
Birds	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Percs slowly	0.31				
3382A:							
Belknap	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Frequent or very frequent flooding	0.70	Frequent or very frequent flooding	0.70	Wetness	1.00
		Too acid	0.32				
3420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Frequent or very frequent flooding	0.70	Wetness	1.00
		Frequent or very frequent flooding	0.70	Drains slowly	0.29	Surface percs slowly	1.00
		Too acid	0.44				
3426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Flooding	1.00
		Percs slowly	1.00	Frequent or very frequent flooding	0.70	Wetness	1.00
		Frequent or very frequent flooding	0.70	Drains slowly	0.59		
		Too acid	0.44				

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods): Rating class and limiting features	Value	Sprinkler irrigation: Rating class and limiting features	Value	Drip or trickle irrigation: Rating class and limiting features	Value
7460A:							
Ginat----------------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Drains slowly	0.99		
		Too acid	0.22				
7462A:							
Sciotoville----------	95	Somewhat limited		Somewhat limited		Not limited	
		Depth to saturated zone	0.95	Depth to saturated zone	0.82		
		Percs slowly	0.61				
		Too acid	0.44				
7462B:							
Sciotoville----------	95	Somewhat limited		Very limited		Not limited	
		Depth to saturated zone	0.95	Slope	1.00		
		Percs slowly	0.61	Depth to saturated zone	0.82		
		Too acid	0.44	Water erosion	0.12		
		Slope	0.08				
7462C2:							
Sciotoville----------	95	Very limited		Very limited		Not limited	
		Slope	1.00	Slope	1.00		
		Depth to saturated zone	0.95	Water erosion	0.99		
		Percs slowly	0.61	Depth to saturated zone	0.82		
		Too acid	0.44	Slopes, sprinkler irrigation	0.10		
		Slopes, sprinkler irrigation	0.10				
7462C3:							
Sciotoville----------	95	Very limited		Very limited		Not limited	
		Slope	1.00	Slope	1.00		
		Depth to saturated zone	0.95	Water erosion	0.99		
		Percs slowly	0.61	Depth to saturated zone	0.82		
		Too acid	0.44	Slopes, sprinkler irrigation	0.10		
		Slopes, sprinkler irrigation	0.10				
7462D2:							
Sciotoville----------	95	Very limited		Very limited		Not limited	
		Slope	1.00	Water erosion	1.00		
		Slopes, sprinkler irrigation	0.98	Slope	1.00		
		Depth to saturated zone	0.95	Slopes, sprinkler irrigation	0.98		
		Percs slowly	0.61	Depth to saturated zone	0.82		
		Too acid	0.44				
7463B:							
Wheeling------------	95	Somewhat limited		Very limited		Not limited	
		Too acid	0.44	Slope	1.00		
		Slope	0.08	Water erosion	0.04		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods) Rating class and limiting features	Value	Sprinkler irrigation Rating class and limiting features	Value	Drip or trickle irrigation Rating class and limiting features	Value
7463C2:							
Wheeling------------	95	Very limited		Very limited		Not limited	
		Slope	1.00	Slope	1.00		
		Too acid	0.44	Water erosion	0.90		
		Slopes, sprinkler irrigation	0.10	Slopes, sprinkler irrigation	0.10		
7711A:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Drains slowly	0.99		
		Too acid	0.22				
7711B:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Slope	1.00		
		Too acid	0.22	Drains slowly	0.99		
		Slope	0.08	Water erosion	0.26		
7711B2:							
Hatfield------------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Slope	1.00		
		Too acid	0.22	Drains slowly	0.99		
		Slope	0.08	Water erosion	0.26		
8071A:							
Darwin--------------	90	Very limited		Very limited		Very limited	
		Percs slowly	1.00	Ponding	1.00	Ponding	1.00
		Ponding	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Depth to saturated zone	1.00	Drains slowly	0.99		
		Occasional flooding	0.40	Occasional flooding	0.40		
8072A:							
Sharon--------------	90	Somewhat limited		Somewhat limited		Not limited	
		Too acid	0.78	Slope	0.50		
		Occasional flooding	0.40	Occasional flooding	0.40		
8108A:							
Bonnie--------------	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.40	Occasional flooding	0.40		
		Percs slowly	0.31				
		Too acid	0.22				

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8180A:							
Dupo	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Occasional flooding	0.40		
		Occasional flooding	0.40	Drains slowly	0.29		
8331A:							
Haymond	90	Somewhat limited		Somewhat limited		Not limited	
		Occasional flooding	0.40	Slope	0.50		
				Occasional flooding	0.40		
8333A:							
Wakeland	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.40	Occasional flooding	0.40		
8382A:							
Belknap	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Occasional flooding	0.40	Occasional flooding	0.40		
		Too acid	0.32				
8420A:							
Piopolis	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Occasional flooding	0.40	Surface percs slowly	1.00
		Too acid	0.44	Drains slowly	0.29		
		Occasional flooding	0.40				
8426A:							
Karnak	90	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Drains slowly	0.59		
		Too acid	0.44	Occasional flooding	0.40		
		Occasional flooding	0.40				
8427B:							
Burnside	90	Somewhat limited		Very limited		Not limited	
		Too acid	0.92	Slope	1.00		
		Occasional flooding	0.40	Occasional flooding	0.40		

Table 18.—Water Management, Part III—Continued

Map symbol and soil name	Pct. of map unit	Irrigation (all application methods)		Sprinkler irrigation		Drip or trickle irrigation	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8787A:							
Banlic----------------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Wetness	1.00
		Percs slowly	1.00	Occasional flooding	0.40		
		Occasional flooding	0.40	Drains slowly	0.29		
W:							
Water-----------------	100	Not rated		Not rated		Not rated	

Table 19.—Engineering Index Properties

(Absence of an entry indicates that the data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
79B:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79C2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79C3:												
Menfro----------	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79D2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
79D3:												
Menfro----------	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79E2:												
Menfro----------	0-7	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	7-59	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	59-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79E3:												
Menfro----------	0-5	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	5-57	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	57-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
79F:												
Menfro----------	0-10	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-35	11-20
	10-62	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	62-80	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
99G. Sandstone and Limestone Rock Land												

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
164A:												
Stoy------------	0-13	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-15
	13-32	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	90-100	40-50	22-32
	32-45	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	15-25
	45-80	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	13-25
164B:												
Stoy------------	0-13	Silt loam	CL, ML	A-4, A-6	0	0	100	100	95-100	90-100	30-40	10-15
	13-32	Silty clay loam	CL	A-7-6	0	0	100	100	95-100	90-100	40-50	22-32
	32-45	Silty clay loam	CL	A-6, A-7-6	0	0	100	100	95-100	90-100	35-50	15-25
	45-80	Silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	30-45	13-25
175A:												
Lamont----------	0-11	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	100	100	80-95	25-50	15-25	5-10
	11-17	Fine sandy loam, loamy fine sand, sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	80-95	15-50	15-25	NP-5
	17-27	Fine sandy loam, loam, sandy clay loam	SC, SC-SM	A-2, A-4	0	0	100	100	85-95	30-50	20-30	5-10
	27-80	Loamy fine sand, loamy sand, sand	SM	A-2, A-3	0	0	100	100	70-90	5-25	0-14	NP
175B:												
Lamont----------	0-11	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	100	100	80-95	25-50	15-25	5-10
	11-17	Fine sandy loam, loamy fine sand, sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	80-95	15-50	15-25	NP-5
	17-27	Fine sandy loam, loam, sandy clay loam	SC, SC-SM	A-2, A-4	0	0	100	100	85-95	30-50	20-30	5-10
	27-80	Loamy fine sand, loamy sand, sand	SM	A-2, A-3	0	0	100	100	70-90	5-25	0-14	NP

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
175C2:												
Lamont----------	0-5	Fine sandy loam	SC, SC-SM	A-2, A-4	0	0	100	100	80-95	25-50	15-25	5-10
	5-20	Fine sandy loam, loamy fine sand, sandy loam	SC-SM, SM	A-2, A-4	0	0	100	100	80-95	15-50	15-25	NP-5
	20-53	Fine sandy loam, loam, sandy clay loam	SC, SC-SM	A-2, A-4	0	0	100	100	85-95	30-50	20-30	5-10
	53-80	Loamy fine sand, loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	70-90	5-25	0-14	NP
214B:												
Hosmer----------	0-7	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	7-28	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	28-67	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	67-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-95	15-25	3-10
214C2:												
Hosmer----------	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	4-25	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	25-64	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	64-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-95	15-25	3-10
214C3:												
Hosmer----------	0-2	Silty clay loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	2-23	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	23-62	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	62-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-95	15-25	3-10

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
214D2:												
Hosmer----------	0-4	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	4-25	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	25-64	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	64-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-95	15-25	3-10
214D3:												
Hosmer----------	0-2	Silt loam, silty clay loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-90	15-25	3-10
	2-23	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	25-35	5-15
	23-62	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	90-100	70-95	20-30	5-15
	62-80	Silt loam	CL, CL-ML, ML	A-4	0	0	100	100	90-100	70-95	15-25	3-10
301B:												
Grantsburg------	0-11	Silt loam	ML, CL	A-4, A-6	0	0	100	100	100	90-100	30-40	7-15
	11-24	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	24-38	Silty clay loam, silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	90-100	35-50	10-25
	38-61	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	61-80	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	30-40	7-15
301C2:												
Grantsburg------	0-7	Silt loam	ML, CL	A-4, A-6	0	0	100	100	100	90-100	30-40	7-15
	7-21	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	21-35	Silty clay loam, silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	90-100	35-50	10-25
	35-58	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	58-80	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	30-40	7-15

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
301C3:												
Grantsburg------	0-3	Silt loam, silty clay loam	ML, CL	A-4, A-6	0	0	100	100	100	90-100	30-40	7-15
	3-19	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	19-33	Silty clay loam, silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	90-100	35-50	10-25
	33-56	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	56-80	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	30-40	7-15
301D2:												
Grantsburg------	0-7	Silt loam	ML, CL	A-4, A-6	0	0	100	100	100	90-100	30-40	7-15
	7-21	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	21-35	Silty clay loam, silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	90-100	35-50	10-25
	35-58	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	58-80	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	30-40	7-15
301D3:												
Grantsburg------	0-3	Silt loam, silty clay loam	ML, CL	A-4, A-6	0	0	100	100	100	90-100	30-40	7-15
	3-19	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	19-33	Silty clay loam, silt loam	CL, ML	A-6, A-7-6	0	0	100	100	100	90-100	35-50	10-25
	33-56	Silt loam, silty clay loam	CL	A-6, A-7	0	0	100	100	100	90-100	30-45	10-20
	56-80	Silt loam	ML, CL	A-4, A-6	0	0	100	100	90-100	85-100	30-40	7-15

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments >10 inches	Fragments 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
335B:												
Robbs-----------	0-13	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	100	95-100	25-40	5-15
	13-26	Silty clay loam	CH, CL	A-7-6, A-7	0	0	100	100	100	95-100	40-60	15-35
	26-49	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	25-50	10-35
	49-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	85-100	25-40	5-15
339C:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---
339D:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
339D2:												
Wellston--------	0-5	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	5-28	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	28-40	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	40-57	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	57-67	Bedrock			---	---	---	---	---	---	---	---
339F:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
340C2:												
Zanesville------	0-4	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	4-19	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	19-39	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	39-57	Channery silt loam, channery silty clay loam, very channery silt loam, channery clay loam, channery sandy clay loam, very channery loam, gravelly loam, gravelly fine sandy loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	57-67	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
340C3:												
Zanesvillle-----	0-2	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	2-17	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	17-37	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	37-55	Channery silt loam, channery silty clay loam, very channery silt loam, channery clay loam, channery sandy clay loam, very channery loam, gravelly loam, gravelly fine sandy loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	55-65	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
340D:												
Zanesville------	0-7	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	7-22	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	22-42	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	42-60	Channery silt loam, channery silty clay loam, very channery silt loam, channery clay loam, channery sandy clay loam, very channery loam, gravelly loam, gravelly fine sandy loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	60-70	Bedrock			---	---	---	---	---	---	---	---
340D2:												
Zanesville------	0-4	Silt loam	ML, CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	4-19	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	19-39	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	39-57	Channery silt loam, channery silty clay loam, very channery silt loam, channery clay loam, channery sandy clay loam, very channery loam, gravelly loam, gravelly fine sandy loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	57-67	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
340D3:												
Zanesvillle-----	0-2	Silt loam, silty clay loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	2-17	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	17-37	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	37-55	Channery silt loam, channery silty clay loam, very channery silt loam, channery clay loam, channery sandy clay loam, very channery loam, gravelly loam, gravelly fine sandy loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	55-65	Bedrock			---	---	---	---	---	---	---	---
477C2:												
Winfield--------	0-6	Silt loam	CL	A-6	0	0	100	100	95-100	90-100	25-40	10-25
	6-10	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	95-100	90-100	35-45	15-25
	10-53	Silty clay loam	CL	A-6, A-7	0	0	100	100	95-100	95-100	35-45	20-25
	53-80	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	95-100	90-100	25-35	5-15
691D:												
Beasley---------	0-7	Silt loam	ML, CL-ML	A-4	0	0-5	90-100	85-100	80-100	75-100	25-35	4-10
	7-14	Silty clay, clay	MH	A-7	0	0-5	90-100	85-100	85-100	75-100	45-70	20-40
	14-40	Gravelly clay, clay, gravelly silty clay, silty clay, gravelly silty clay loam	MH, CL	A-7	0	0-10	70-100	55-100	50-100	50-95	35-65	15-35
	40-80	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
691F:												
Beasley	0-7	Silt loam	ML, CL-ML	A-4	0	0-5	90-100	85-100	80-100	75-100	25-35	4-10
	7-14	Silty clay, clay	MH	A-7	0	0-5	90-100	85-100	85-100	75-100	45-70	20-40
	14-40	Gravelly clay, clay, gravelly silty clay, silty clay, gravelly silty clay loam	MH, CL	A-7	0	0-10	70-100	55-100	50-100	50-95	35-65	15-35
	40-80	Bedrock			---	---	---	---	---	---	---	---
793F:												
Berks	0-4	Channery silt loam, channery loam	GM, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	4-20	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-28	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	28-39	Bedrock			---	---	---	---	---	---	0-14	---
Muskingum	0-3	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	3-20	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	20-34	Very channery loam, very channery silt loam, stony silt loam	GM, ML, SM	A-4, A-2	0-10	0-20	70-90	55-85	50-80	30-80	20-35	2-10
	34-44	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
793F:												
Weikert---------	0-2	Channery silt loam, channery loam	GM, ML, SM	A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	2-5	Very channery silt loam, channery loam, very channery loam, very stony loam	GM, SC, SM	A-4, A-2, A-2-4	0-10	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	5-13	Very channery silt loam, very flaggy silt loam, very flaggy loam, very channery loam	GM, SC, SM	A-4, A-2, A-1, A-2-4	0-10	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	13-23	Bedrock			---	---	---	---	---	---	---	---
793G:												
Berks-----------	0-4	Channery silt loam, channery loam	GM, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	4-20	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-28	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	28-39	Bedrock			---	---	---	---	---	---	0-14	---
Muskingum-------	0-3	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	3-20	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	20-34	Very channery loam, very channery silt loam, stony silt loam	GM, ML, SM	A-4, A-2	0-10	0-20	70-90	55-85	50-80	30-80	20-35	2-10
	34-44	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas-ticity index
	In				Pct	Pct					Pct	
793G:												
Weikert---------	0-2	Channery silt loam, channery loam	GM, ML, SM	A-4	0	0-10	35-70	35-70	25-65	20-55	30-40	4-10
	2-5	Very channery silt loam, channery loam, very channery loam, very stony loam	GM, SC, SM	A-4, A-2, A-2-4	0-10	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	5-13	Very channery silt loam, very flaggy silt loam, very flaggy loam, very channery loam	GM, SC, SM	A-4, A-2, A-1, A-2-4	0-10	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	13-23	Bedrock			---	---	---	---	---	---	---	---
801B:												
Orthents, silty-	0-80	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4, A-7	0	0	100	100	90-100	80-95	25-45	5-25
802D:												
Orthents, loamy-	0-6	Loam, silt loam, clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-80	Loam, silt loam, very fine sandy loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
802F:												
Orthents, loamy-	0-6	Loam, silt loam, clay loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20
	6-80	Loam, silt loam, very fine sandy loam	CL	A-6	0	0-5	95-100	90-100	85-95	60-90	20-40	10-20

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
834F:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---
Westmore--------	0-6	Silt loam	CL, CL-ML, ML	A-4	0	0	100	90-100	80-100	70-95	22-35	4-10
	6-22	Silty clay loam, silt loam	CL, ML	A-6, A-7	---	0-5	95-100	90-100	85-100	80-90	30-50	11-20
	22-62	Silty clay, clay, channery silty clay loam, gravelly silty clay loam	CH, CL	A-6, A-7	---	0-15	80-100	65-95	60-90	55-90	38-70	18-40
	62-72	Bedrock			---	---	---	---	---	---	---	---
864. Pits, quarries												
865. Pits, gravel												

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
940D2:												
Zanesville------	0-4	Silt loam	CL, CL-ML	A-4, A-6	0	0	95-100	95-100	90-100	80-100	25-40	4-15
	4-19	Silt loam, silty clay loam	CL, CL-ML	A-6, A-4	0	0	95-100	95-100	90-100	80-100	25-40	5-20
	19-39	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0-3	90-100	85-100	80-100	60-100	20-40	2-20
	39-57	Channery silt loam, channery silty clay loam, very channery silt loam, channery clay loam, channery sandy clay loam, very channery loam, gravelly loam, gravelly fine sandy loam	CL, GM, SC, SM	A-6, A-4, A-2, A-1-b	0	0-10	65-100	50-100	40-100	20-85	20-40	2-20
	57-67	Bedrock			---	---	---	---	---	---	---	---
Westmore--------	0-3	Silt loam	CL, CL-ML, ML	A-4	0	0	100	90-100	80-100	70-95	22-35	4-10
	3-19	Silty clay loam, silt loam	CL, ML	A-6, A-7	---	0-5	95-100	90-100	85-100	80-90	30-50	11-20
	19-59	Silty clay, clay, channery silty clay loam, gravelly silty clay loam	CH, CL	A-6, A-7	---	0-15	80-100	65-95	60-90	55-90	38-70	18-40
	59-69	Bedrock			---	---	---	---	---	---	---	---
955F:												
Muskingum-------	0-3	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	3-20	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	20-34	Very channery loam, very channery silt loam, stony silt loam	GM, ML, SM	A-4, A-2	0-10	0-20	70-90	55-85	50-80	30-80	20-35	2-10
	34-44	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
955F:												
Berks-----------	0-4	Channery silt loam, channery loam	GM, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	4-20	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-28	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	28-39	Bedrock			---	---	---	---	---	---	0-14	---
955G:												
Muskingum-------	0-3	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	3-20	Channery silt loam	ML, SM, GM	A-4	0	0-10	75-100	70-95	50-90	30-80	20-35	2-10
	20-34	Very channery loam, very channery silt loam, stony silt loam	GM, ML, SM	A-4, A-2	0-10	0-20	70-90	55-85	50-80	30-80	20-35	2-10
	34-44	Bedrock			---	---	---	---	---	---	---	---
Berks-----------	0-4	Channery silt loam, channery loam	GM, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	4-20	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-28	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	28-39	Bedrock			---	---	---	---	---	---	0-14	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
977F:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---
Neotoma---------	0-10	Very flaggy silt loam, flaggy sandy clay loam, flaggy silt loam	GC, GM, ML, SM	A-4	0	10-30	55-80	50-75	40-70	40-65	22-35	3-10
	10-26	Very flaggy silt loam, flaggy loam, extremely flaggy silt loam, extremely flaggy loam, extremely flaggy fine sandy loam	GM, ML, SM	A-4	0	10-50	50-80	50-80	45-70	40-60	25-40	3-10
	26-60	Very channery loam, extremely flaggy sandy loam, channery silt loam, extremely flaggy sandy clay loam	GM, GC-GM	A-2-4, A-4	0	40-85	40-65	35-60	30-50	25-45	15-35	NP-8
	60-75	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
986D:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---
Berks-----------	0-4	Channery silt loam, channery loam	GM, GC, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	4-20	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-28	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	28-39	Bedrock			---	---	---	---	---	---	0-14	---
986D2:												
Wellston--------	0-5	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	5-28	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	28-40	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	40-57	Channery loam, gravelly sandy loam, channery clay loam	SC-SM, CL, GC-GM, SC	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	57-67	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
986D2:												
Berks-----------	0-1	Channery silt loam, channery loam	GM, GC, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	1-17	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	17-25	Very channery loam, channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	25-39	Bedrock			---	---	---	---	---	---	0-14	---
986D3:												
Wellston--------	0-3	Silt loam, silty clay loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	3-26	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	26-38	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	38-55	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	55-65	Bedrock			---	---	---	---	---	---	---	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
986D3:												
Berks-----------	0-1	Channery silt loam, channery loam	GM, GC, ML	A-2, A-2-4, A-4	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	1-15	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	15-23	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	23-39	Bedrock			---	---	---	---	---	---	0-14	---
986F:												
Wellston--------	0-8	Silt loam	ML	A-4	0	0	95-100	90-100	85-100	70-95	25-35	3-10
	8-31	Silt loam, silty clay loam	CL-ML, CL	A-4, A-6	0	0	80-100	75-100	65-95	60-90	25-40	5-20
	31-43	Channery silt loam, loam, channery loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	65-90	65-90	60-90	40-65	20-35	5-15
	43-60	Channery loam, gravelly sandy loam, channery clay loam	CL, GC-GM, SC, SC-SM	A-6, A-4, A-2-4, A-1-b	0	0-15	60-80	45-75	30-70	15-55	20-35	5-15
	60-70	Bedrock			---	---	---	---	---	---	---	---
Berks-----------	0-4	Channery silt loam, channery loam	GM, GC, ML	A-4, A-2	0	0-30	50-80	45-70	40-60	30-55	25-36	5-10
	4-20	Very channery loam, channery loam, channery silt loam, channery silty clay loam	GM, GC, SC, SM	A-2, A-2-4, A-4	0	0-30	40-80	35-70	25-60	20-45	25-36	5-10
	20-28	Very channery loam, extremely channery loam, very channery silt loam	GM, SM	A-1-b, A-2	0	0-40	35-65	25-55	20-40	15-35	24-38	2-10
	28-39	Bedrock			---	---	---	---	---	---	0-14	---

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
1334A:												
Birds-----------	0-22	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
	22-80	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
1843A:												
Bonnie----------	0-10	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	10-27	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	27-80	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	85-100	25-39	8-15
Petrolia-------	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-100	35-45	15-22
	8-55	Silty clay loam	CL	A-7, A-6	0	0	100	95-100	90-100	85-100	35-45	15-22
	55-80	Silty clay loam, silt loam	CL	A-6, A-7, A-4	0	0	100	95-100	80-100	60-100	20-45	8-22
1846A:												
Karnak----------	0-5	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	45-80	25-45
	5-50	Silty clay, clay	CH, CL, MH, ML	A-7	0	0	100	100	95-100	95-100	45-80	20-40
	50-80	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	45-80	25-45
Cape------------	0-10	Silty clay loam	CL	A-7, A-6	0	0	100	100	100	95-100	35-50	20-30
	10-22	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	100	100	95-100	35-50	20-30
	22-80	Silty clay, clay, silty clay loam	CH	A-7	0	0	100	100	100	90-100	39-70	30-45
3071A:												
Darwin----------	0-14	Silty clay	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	14-56	Silty clay, clay	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	56-80	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	100	95-100	90-100	35-70	20-45
3108A:												
Bonnie----------	0-10	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	10-27	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	27-80	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	85-100	25-39	8-15

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
3180A:												
Dupo------------	0-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	9-25	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	25-80	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	100	98-100	50-70	30-45
3288A:												
Petrolia--------	0-8	Silty clay loam	CL	A-6, A-7	0	0	100	95-100	90-100	80-100	35-45	15-22
	8-55	Silty clay loam	CL	A-7, A-6	0	0	100	95-100	90-100	85-100	35-45	15-22
	55-80	Silty clay loam, silt loam	CL	A-6, A-7, A-4	0	0	100	95-100	80-100	60-100	20-45	8-22
3331A:												
Haymond---------	0-20	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	20-60	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	60-80	Fine sandy loam, silt loam, loam	ML, SC, SM	A-4	0	0	95-100	90-100	65-100	35-90	15-35	2-15
3333A:												
Wakeland--------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	8-68	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	68-80	Silt loam, loam	ML, CL, CL-ML	A-4	0	0	100	100	85-100	60-100	16-28	3-9
3334A:												
Birds-----------	0-22	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
	22-80	Silt loam	CL	A-6, A-4	0	0	100	95-100	90-100	80-100	24-34	8-15
3382A:												
Belknap---------	0-7	Silt loam	CL-ML, ML, CL	A-4	0	0	100	95-100	95-100	80-100	20-30	2-8
	7-59	Silt loam	CL-ML, ML, CL	A-4, A-6	0	0	100	95-100	95-100	80-100	20-35	NP-12
	59-80	Silt loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0	100	95-100	95-100	75-100	20-40	3-20
3420A:												
Piopolis--------	0-7	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	35-50	15-25
	7-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-95	35-50	15-25
	37-80	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-50	15-25

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
3426A:												
Karnak----------	0-5	Silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	45-80	25-45
	5-50	Silty clay, clay	CH, CL, MH, ML	A-7	0	0	100	100	95-100	95-100	45-80	20-40
	50-80	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-100	45-80	25-45
7460A:												
Ginat-----------	0-19	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-90	20-30	5-15
	19-34	Silt loam, silty clay loam	CL	A-6	0	0	100	100	90-100	70-90	25-35	10-15
	34-49	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	30-45	15-25
	49-80	Silty clay loam, silt loam, clay loam, loam, silty clay	CL	A-6, A-7	0	0-5	80-100	75-100	70-100	70-95	35-50	20-30
7462A:												
Sciotoville-----	0-8	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	65-95	25-35	4-10
	8-24	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	20-35	4-15
	24-52	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	85-100	65-90	25-40	4-18
	52-80	Stratified silty clay loam to gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-15	75-100	75-100	65-100	45-70	5-35	NP-15

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7462B:												
Sciotoville-----	0-8	Silt loam	ML, CL-ML	A-4	0	0	95-100	95-100	90-100	65-95	25-35	4-10
	8-24	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	20-35	4-15
	24-52	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	85-100	65-90	25-40	4-18
	52-80	Stratified silty clay loam to gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-15	75-100	75-100	65-100	45-70	5-35	NP-15
7462C2:												
Sciotoville-----	0-5	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	65-95	25-35	4-10
	5-21	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	20-35	4-15
	21-49	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	85-100	65-90	25-40	4-18
	49-80	Stratified silty clay loam to gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-15	75-100	75-100	65-100	45-70	5-35	NP-15
7462C3:												
Sciotoville-----	0-3	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	65-95	25-35	4-10
	3-19	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	20-35	4-15
	19-47	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	85-100	65-90	25-40	4-18
	47-80	Stratified silty clay loam to gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-15	75-100	75-100	65-100	45-70	5-35	NP-15

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
7462D2:												
Sciotoville-----	0-5	Silt loam	CL-ML, ML	A-4	0	0	95-100	95-100	90-100	65-95	25-35	4-10
	5-21	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0	95-100	90-100	85-100	70-90	20-35	4-15
	21-49	Silt loam, silty clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	95-100	90-100	85-100	65-90	25-40	4-18
	49-80	Stratified silty clay loam to gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-15	75-100	75-100	65-100	45-70	5-35	NP-15
7463B:												
Wheeling--------	0-10	Silt loam, fine sandy loam, sandy loam, loam	CL, ML, SC, SM	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	10-49	Clay loam, loam, silt loam, silty clay loam, gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	49-80	Stratified fine sandy loam to very gravelly loamy sand	GM, GP, GW, SM	A-1, A-2, A-3, A-4	0	10-20	35-90	20-75	10-65	4-45	15-20	NP-10
7463C2:												
Wheeling--------	0-7	Silt loam, fine sandy loam, sandy loam, loam	CL, ML, SC, SM	A-4	0	0	90-100	90-100	85-100	45-90	15-35	NP-10
	7-46	Clay loam, loam, silt loam, silty clay loam, gravelly sandy loam	CL, ML, SC, SM	A-4, A-6	0	0-5	90-100	70-100	65-100	45-80	20-40	2-20
	46-80	Stratified fine sandy loam to very gravelly loamy sand	GM, GP, GW, SM	A-1, A-2, A-3, A-4	0	10-20	35-90	20-75	10-65	4-45	15-20	NP-10

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
7711A:												
Hatfield--------	0-14	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-90	20-40	5-15
	14-36	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	8-15
	36-45	Silt loam, silty clay loam, clay loam, loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	70-90	25-42	8-20
	45-80	Silty clay loam, silt loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	30-45	15-25
7711B:												
Hatfield--------	0-14	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-90	20-40	5-15
	14-36	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	8-15
	36-45	Silt loam, silty clay loam, clay loam, loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	70-90	25-42	8-20
	45-80	Silty clay loam, silt loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	30-45	15-25
7711B2:												
Hatfield--------	0-11	Silt loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-100	60-90	20-40	5-15
	11-33	Silt loam, silty clay loam	CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	8-15
	33-42	Silt loam, silty clay loam, clay loam, loam	CL	A-4, A-6, A-7	0	0	100	100	90-100	70-90	25-42	8-20
	42-80	Silty clay loam, silt loam, clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	30-45	15-25

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
8071A:												
Darwin----------	0-14	Silty clay	CH, CL	A-7	0	0	100	100	100	90-100	45-85	25-55
	14-56	Silty clay, clay	CH, CL	A-7	0	0	100	100	100	85-100	45-85	25-55
	56-80	Silty clay loam, silty clay	CH, CL	A-6, A-7	0	0	100	100	95-100	90-100	35-70	20-45
8072A:												
Sharon----------	0-13	Silt loam	CL-ML, CL, ML	A-4	0	0	100	100	95-100	85-95	20-30	2-10
	13-40	Silt loam	CL-ML, CL, ML, SC, SM	A-4	0	0	100	100	70-95	40-90	15-30	NP-10
	40-80	Silt loam, loam, sandy loam	CL-ML, CL, ML, SC, SM	A-4	0	0	100	100	70-95	40-90	15-30	NP-10
8108A:												
Bonnie----------	0-10	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	10-27	Silt loam	CL	A-4, A-6	0	0	100	100	95-100	90-100	27-34	8-12
	27-80	Silt loam, silty clay loam	CL	A-6, A-4	0	0	100	100	90-100	85-100	25-39	8-15
8180A:												
Dupo------------	0-9	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	9-25	Silt loam	CL, CL-ML	A-4	0	0	100	100	100	95-100	20-30	5-10
	25-80	Silty clay, clay, silty clay loam	CH	A-7-6	0	0	100	100	100	98-100	50-70	30-45
8331A:												
Haymond---------	0-20	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-100	20-30	3-10
	20-60	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	20-30	3-10
	60-80	Fine sandy loam, loam, silt loam	ML, SC, SM	A-4	0	0	95-100	90-100	65-100	35-90	15-35	2-15
8333A:												
Wakeland--------	0-8	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	8-68	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	80-100	16-28	3-9
	68-80	Silt loam, loam	ML, CL, CL-ML	A-4	0	0	100	100	85-100	60-100	16-28	3-9

Table 19.—Engineering Index Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
8382A:												
Belknap---------	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	80-100	20-30	2-8
	7-59	Silt loam	CL-ML, ML	A-4	0	0	100	95-100	90-100	80-100	20-35	NP-12
	59-80	Silt loam, loam, silty clay loam	CL, CL-ML, ML	A-6, A-4	0	0	100	95-100	95-100	75-100	20-40	3-20
8420A:												
Piopolis--------	0-7	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	80-95	35-50	15-25
	7-37	Silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	85-95	35-50	15-25
	37-80	Silty clay loam, silt loam	CL	A-6, A-7	0	0	100	100	90-100	70-95	35-50	15-25
8426A:												
Karnak----------	0-5	Silty clay loam, silty clay	CH, CL	A-7	0	0	100	100	95-100	95-100	45-80	25-45
	5-50	Silty clay, clay	CH	A-7	0	0	100	100	95-100	95-100	45-80	20-40
	50-80	Silty clay, silty clay loam	CH	A-7	0	0	100	100	95-100	85-100	45-80	25-45
8427B:												
Burnside--------	0-17	Silt loam, loam	CL-ML, CL, ML	A-4	0-2	0-10	100	100	80-95	75-95	20-35	2-10
	17-57	Very flaggy loam, extremely flaggy sandy loam, extremely flaggy silt loam, extremely flaggy loam	GC-GM, GC, GM, SC, SM	A-2, A-4	0-5	10-60	35-80	30-60	30-50	26-45	0-20	NP-10
	57-67	Bedrock			---	---	---	---	---	---	---	---
8787A:												
Banlic----------	0-8	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	8-21	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	21-55	Silt loam, silt	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
	55-80	Silt loam	CL, CL-ML	A-4	0	0	100	100	90-100	85-95	20-30	5-10
W.												
Water												

Table 20.—Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
79B:														
Menfro--------------	0-10	0-5	68-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79C2:														
Menfro--------------	0-7	0-5	68-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79C3:														
Menfro--------------	0-5	0-5	68-85	12-35	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79D2:														
Menfro--------------	0-7	0-5	68-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79D3:														
Menfro--------------	0-5	0-5	68-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79E2:														
Menfro--------------	0-7	0-5	68-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	7-59	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	59-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79E3:														
Menfro--------------	0-5	0-5	68-85	12-35	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	4	6	48
	5-57	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	57-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			
79F:														
Menfro--------------	0-10	0-5	68-85	12-27	1.25-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.43	.43	5	5	56
	10-62	0-5	63-83	17-33	1.35-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	62-80	0-10	65-85	8-33	1.30-1.45	0.6-2	0.20-0.22	0.0-2.9	0.0-0.2	.43	.43			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
99G. Sandstone and Limestone Rock Land														
164A:														
Stoy----------------	0-13	0-5	68-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	13-32	0-5	60-73	27-35	1.35-1.55	0.06-0.2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	32-45	0-5	60-73	27-35	1.30-1.60	0.06-0.2	0.09-0.12	3.0-5.9	0.2-0.5	.37	.37			
	45-80	0-10	65-80	20-27	1.40-1.75	0.06-0.2	0.10-0.15	0.0-2.9	0.2-0.5	.43	.43			
164B:														
Stoy----------------	0-13	0-5	68-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	13-32	0-5	60-73	27-35	1.35-1.55	0.06-0.2	0.18-0.20	3.0-5.9	0.2-1.0	.37	.37			
	32-45	0-5	60-73	27-35	1.30-1.60	0.06-0.2	0.09-0.12	3.0-5.9	0.2-0.5	.37	.37			
	45-80	0-10	65-80	20-27	1.40-1.75	0.06-0.2	0.10-0.15	0.0-2.9	0.2-0.5	.43	.43			
175A:														
Lamont--------------	0-11	43-85	5-45	5-15	1.50-1.55	2-6	0.15-0.18	0.0-2.9	0.8-1.5	.20	.20	5	3	86
	11-17	45-90	5-49	2-19	1.50-1.55	2-6	0.09-0.16	0.0-2.9	0.0-0.5	.24	.24			
	17-27	25-80	5-45	5-30	1.45-1.65	2-6	0.09-0.16	0.0-2.9	0.0-0.5	.24	.24			
	27-80	35-90	5-45	2-20	1.65-1.75	6-20	0.04-0.15	0.0-2.9	0.0-0.5	.17	.17			
175B:														
Lamont--------------	0-11	43-85	5-45	5-15	1.50-1.55	2-6	0.15-0.18	0.0-2.9	0.8-1.5	.20	.20	5	3	86
	11-17	45-90	5-49	2-19	1.50-1.55	2-6	0.09-0.16	0.0-2.9	0.0-0.5	.24	.24			
	17-27	25-80	5-45	5-30	1.45-1.65	2-6	0.09-0.16	0.0-2.9	0.0-0.5	.24	.24			
	27-80	35-90	5-45	2-20	1.65-1.75	6-20	0.04-0.15	0.0-2.9	0.0-0.5	.17	.17			
175C2:														
Lamont--------------	0-5	43-85	5-45	5-15	1.50-1.55	2-6	0.14-0.17	0.0-2.9	0.5-1.0	.20	.20	5	3	86
	5-20	45-90	5-49	2-19	1.50-1.55	2-6	0.09-0.16	0.0-2.9	0.0-0.5	.24	.24			
	20-53	25-80	5-45	5-30	1.45-1.65	2-6	0.09-0.16	0.0-2.9	0.0-0.5	.24	.24			
	53-80	35-90	5-45	2-20	1.65-1.75	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.17	.17			
214B:														
Hosmer--------------	0-7	0-5	68-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	7-28	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	28-67	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	67-80	0-10	65-85	15-27	1.50-1.70	0.06-0.2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
214C2:														
Hosmer--------------	0-4	0-5	68-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	4-25	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	25-64	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	64-80	0-10	65-85	15-27	1.50-1.70	0.06-0.2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
214C3:														
Hosmer--------------	0-2	0-5	68-88	12-33	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	3	6	48
	2-23	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	23-62	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	62-80	0-10	65-85	15-27	1.50-1.70	0.06-0.2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
214D2:														
Hosmer--------------	0-4	0-5	68-88	12-27	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	4	5	56
	4-25	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	25-64	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	64-80	0-10	65-85	15-27	1.50-1.70	0.06-0.2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
214D3:														
Hosmer--------------	0-2	0-5	68-88	12-33	1.20-1.40	0.6-2	0.22-0.24	0.0-2.9	0.5-1.0	.43	.43	3	6	48
	2-23	0-5	65-82	18-35	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.2-1.0	.43	.43			
	23-62	0-5	65-85	15-35	1.60-1.70	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.2	.43	.43			
	62-80	0-10	65-85	15-27	1.50-1.70	0.06-0.2	0.22-0.24	0.0-2.9	0.0-0.2	.43	.43			
301B:														
Grantsburg----------	0-11	0-5	70-80	12-25	1.10-1.40	0.6-2	0.20-0.25	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	11-24	0-5	65-80	20-30	1.30-1.60	0.6-2	0.10-0.20	3.0-5.9	0.1-0.5	.37	.37			
	24-38	0-5	60-75	25-35	1.50-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.0-0.2	.37	.37			
	38-61	1-18	62-79	20-32	1.55-1.80	0.01-0.06	0.05-0.10	3.0-5.9	0.0-0.2	.37	.37			
	61-80	1-30	43-79	20-27	1.50-1.70	0.06-0.2	0.10-0.20	0.0-2.9	0.0-0.2	.43	.43			
301C2:														
Grantsburg----------	0-7	0-5	70-80	12-25	1.10-1.40	0.6-2	0.20-0.25	0.0-2.9	0.5-3.0	.43	.43	4	5	56
	7-21	0-5	65-80	20-30	1.30-1.60	0.6-2	0.10-0.20	3.0-5.9	0.1-0.5	.37	.37			
	21-35	0-5	60-75	25-35	1.50-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.0-0.2	.37	.37			
	35-58	1-18	62-79	20-32	1.55-1.80	0.01-0.06	0.05-0.10	3.0-5.9	0.0-0.2	.37	.37			
	58-80	1-30	43-79	20-27	1.50-1.70	0.06-0.2	0.10-0.20	0.0-2.9	0.0-0.2	.43	.43			
301C3:														
Grantsburg----------	0-3	0-5	70-80	20-35	1.10-1.40	0.6-2	0.20-0.25	0.0-2.9	0.5-2.0	.43	.43	3	6	48
	3-19	0-5	65-80	20-30	1.30-1.60	0.6-2	0.10-0.20	3.0-5.9	0.1-0.5	.37	.37			
	19-33	0-5	60-75	25-35	1.50-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.0-0.2	.37	.37			
	33-56	1-18	62-79	20-32	1.55-1.80	0.01-0.06	0.05-0.10	3.0-5.9	0.0-0.2	.37	.37			
	56-80	1-30	43-79	20-27	1.50-1.70	0.06-0.2	0.10-0.20	0.0-2.9	0.0-0.2	.43	.43			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
301D2:														
Grantsburg----------	0-7	0-5	70-80	12-25	1.10-1.40	0.6-2	0.20-0.25	0.0-2.9	0.5-3.0	.43	.43	4	5	56
	7-21	0-5	65-80	20-30	1.30-1.60	0.6-2	0.10-0.20	3.0-5.9	0.1-0.5	.37	.37			
	21-35	0-5	60-75	25-35	1.50-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.0-0.2	.37	.37			
	35-58	1-18	62-79	20-32	1.55-1.80	0.01-0.06	0.05-0.10	3.0-5.9	0.0-0.2	.37	.37			
	58-80	1-30	43-79	20-27	1.50-1.70	0.06-0.2	0.10-0.20	0.0-2.9	0.0-0.2	.43	.43			
301D3:														
Grantsburg----------	0-3	0-5	70-80	20-35	1.10-1.40	0.6-2	0.20-0.25	0.0-2.9	0.5-2.0	.43	.43	3	6	48
	3-19	0-5	65-80	20-30	1.30-1.60	0.6-2	0.10-0.20	3.0-5.9	0.1-0.5	.37	.37			
	19-33	0-5	60-75	25-35	1.50-1.70	0.2-0.6	0.10-0.20	3.0-5.9	0.0-0.2	.37	.37			
	33-56	1-18	62-79	20-32	1.55-1.80	0.01-0.06	0.05-0.10	3.0-5.9	0.0-0.2	.37	.37			
	56-80	1-30	43-79	20-27	1.50-1.70	0.06-0.2	0.10-0.20	0.0-2.9	0.0-0.2	.43	.43			
335B:														
Robbs---------------	0-13	1-7	66-84	15-27	1.20-1.40	0.6-2	0.20-0.25	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	13-26	1-7	58-72	27-35	1.30-1.55	0.2-0.6	0.10-0.20	3.0-5.9	0.1-0.5	.43	.43			
	26-49	1-7	58-77	22-35	1.70-1.85	0.01-0.06	0.05-0.10	3.0-5.9	0.0-0.2	.43	.43			
	49-80	1-20	53-75	15-27	1.40-1.60	0.2-2	0.05-0.20	0.0-2.9	0.0-0.2	.43	.43			
339C:														
Wellston------------	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			
339D:														
Wellston------------	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			
339D2:														
Wellston------------	0-5	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	5-28	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	28-40	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	40-57	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	57-67	---	---	---	---	0.2-2	---	---	---	---	---			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors			Wind erodi-bility group	Wind erodi-bility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
339F:														
Wellston------------	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			
340C2:														
Zanesville----------	0-4	0-5	68-88	12-27	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	4-19	0-20	60-75	20-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	19-39	5-32	50-77	18-33	1.50-1.75	0.01-0.06	0.08-0.12	0.0-2.9	0.0-0.5	.37	.37			
	39-57	5-70	10-70	18-40	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	57-67	---	---	---	---	0.01-0.2	---	---	---	---	---			
340C3:														
Zanesville----------	0-2	0-5	60-88	12-35	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	0.5-1.0	.43	.43	2	6	48
	2-17	0-20	60-75	20-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37			
	17-37	5-32	50-77	18-33	1.50-1.75	0.01-0.06	0.08-0.12	0.0-2.9	0.0-0.5	.37	.37			
	37-55	5-70	10-70	18-40	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	55-65	---	---	---	---	0.01-0.2	---	---	---	---	---			
340D:														
Zanesville----------	0-7	0-5	68-88	12-27	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	7-22	0-20	60-75	20-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	22-42	5-32	50-77	18-33	1.50-1.75	0.01-0.06	0.08-0.12	0.0-2.9	0.0-0.5	.37	.37			
	42-60	5-70	10-70	18-40	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	60-70	---	---	---	---	0.01-0.2	---	---	---	---	---			
340D2:														
Zanesville----------	0-4	0-5	68-88	12-27	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	4-19	0-20	60-80	20-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	19-39	5-32	50-77	18-33	1.50-1.75	0.01-0.06	0.08-0.12	0.0-2.9	0.0-0.5	.37	.37			
	39-57	5-70	10-70	18-40	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	57-67	---	---	---	---	0.01-0.2	---	---	---	---	---			
340D3:														
Zanesville----------	0-2	0-5	68-88	12-35	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	0.5-1.0	.43	.43	2	6	48
	2-17	0-20	60-75	20-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.0-0.5	.37	.37			
	17-37	5-32	50-77	18-33	1.50-1.75	0.01-0.06	0.08-0.12	0.0-2.9	0.0-0.5	.37	.37			
	37-55	5-70	10-70	18-40	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	55-65	---	---	---	---	0.01-0.2	---	---	---	---	---			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors Kw	Kf	T	Wind erodibility group	Wind erodibility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
477C2:														
Winfield------------	0-6	0-5	68-85	12-27	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-2.0	.37	.37	5	5	56
	6-10	0-5	65-78	22-30	1.30-1.50	0.6-2	0.18-0.22	3.0-5.9	0.5-1.0	.37	.37			
	10-53	0-5	65-76	24-35	1.30-1.50	0.6-2	0.18-0.20	3.0-5.9	0.0-0.5	.37	.37			
	53-80	0-10	65-85	8-27	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.37	.37			
691D:														
Beasley-------------	0-7	0-40	50-80	10-27	1.20-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-3.0	.43	.43	3	6	48
	7-14	0-30	30-55	40-70	1.30-1.55	0.2-0.6	0.12-0.18	3.0-5.9	0.1-0.5	.32	.32			
	14-40	0-40	15-50	30-70	1.50-1.70	0.2-0.6	0.09-0.15	3.0-5.9	0.1-0.5	.32	.32			
	40-80	---	---	---	---	0.01-0.6	---	---	---	---	---			
691F:														
Beasley-------------	0-7	0-40	50-80	10-27	1.20-1.40	0.6-2	0.18-0.23	0.0-2.9	1.0-3.0	.43	.43	3	6	48
	7-14	0-30	30-55	40-70	1.30-1.55	0.2-0.6	0.12-0.18	3.0-5.9	0.1-0.5	.32	.32			
	14-40	0-40	15-50	30-70	1.50-1.70	0.2-0.6	0.09-0.15	3.0-5.9	0.1-0.5	.32	.32			
	40-80	---	---	---	---	0.01-0.6	---	---	---	---	---			
793F:														
Berks---------------	0-4	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	4-20	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	20-28	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	28-39	---	---	---	---	0.2-20	---	---	---	---	---			
Muskingum-----------	0-3	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.24	.37	3	6	48
	3-20	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	0.0-0.5	.24	.37			
	20-34	0-50	30-80	10-27	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	0.0-0.5	.28	.32			
	34-44	---	---	---	---	0.01-0.2	---	---	---	---	---			
Weikert-------------	0-2	15-50	30-70	5-27	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-3.0	.28	.32	1	6	48
	2-5	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	5-13	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	13-23	---	---	---	---	0.2-20	---	---	---	---	---			
793G:														
Berks---------------	0-4	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	4-20	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	20-28	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	28-39	---	---	---	---	0.2-20	---	---	---	---	---			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
793G:														
Muskingum-----------	0-3	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.24	.37	3	6	48
	3-20	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	0.0-0.5	.24	.37			
	20-34	0-50	30-80	10-27	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	0.0-0.5	.28	.32			
	34-44	---	---	---	---	0.01-0.2	---	---	---	---	---			
Weikert-------------	0-2	15-50	30-70	5-27	1.20-1.40	2-6	0.08-0.14	0.0-2.9	1.0-3.0	.28	.32	1	6	48
	2-5	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	5-13	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	13-23	---	---	---	---	0.2-20	---	---	---	---	---			
801B:														
Orthents, silty-----	0-80	5-44	51-80	5-35	1.70-1.80	0.2-2	0.16-0.19	3.0-5.9	0.0-1.0	.43	.43	5	6	48
802D:														
Orthents, loamy-----	0-6	5-50	30-77	18-40	1.70-1.75	0.2-0.6	0.18-0.22	3.0-5.9	0.1-1.0	.43	.32	5	6	48
	6-80	5-67	15-77	18-30	1.70-1.90	0.2-0.6	0.16-0.20	3.0-5.9	0.0-1.0	.43	.32			
802F:														
Orthents, loamy-----	0-6	5-50	30-77	18-40	1.70-1.75	0.2-0.6	0.18-0.22	3.0-5.9	0.1-1.0	.43	.32	5	6	48
	6-80	5-67	15-77	18-27	1.70-1.90	0.2-0.6	0.16-0.20	3.0-5.9	0.0-1.0	.43	.32			
834F:														
Wellston------------	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			
Westmore------------	0-6	0-5	68-85	15-27	1.35-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	6-22	0-5	60-75	25-35	1.40-1.60	0.6-2	0.17-0.21	3.0-5.9	0.5-1.0	.37	.37			
	22-62	0-20	35-65	35-60	1.40-1.70	0.06-0.6	0.10-0.14	6.0-8.9	0.2-0.5	.32	.37			
	62-72	---	---	---	---	0.2-2	---	---	---	---	---			
864.														
Pits, quarries														
865.														
Pits, gravel														

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permeability (Ksat)	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
940D2:														
Zanesville----------	0-4	0-5	68-88	12-27	1.35-1.40	0.6-2	0.19-0.23	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	4-19	0-20	60-75	20-35	1.35-1.45	0.6-2	0.17-0.22	0.0-2.9	0.5-2.0	.37	.37			
	19-39	5-32	50-77	18-33	1.50-1.75	0.01-0.06	0.08-0.12	0.0-2.9	0.0-0.5	.37	.37			
	39-57	5-70	10-70	18-41	1.50-1.70	0.2-2	0.08-0.12	0.0-2.9	0.0-0.5	.24	.28			
	57-67	---	---	---	---	0.01-0.2	---	---	---	---	---			
Westmore------------	0-3	0-5	68-85	15-27	1.35-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	3-19	0-5	60-75	25-35	1.40-1.60	0.6-2	0.17-0.21	3.0-5.9	0.5-1.0	.37	.37			
	19-59	0-20	35-65	35-60	1.40-1.70	0.06-0.6	0.10-0.14	6.0-8.9	0.2-0.5	.32	.37			
	59-69	---	---	---	---	0.2-2	---	---	---	---	---			
955F:														
Muskingum-----------	0-3	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	3-20	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	0.0-0.5	.24	.28			
	20-34	0-50	30-80	10-27	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	0.0-0.5	.24	.28			
	34-44	---	---	---	---	0.01-0.2	---	---	---	---	---			
Berks---------------	0-4	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	4-20	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	20-28	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	28-39	---	---	---	---	0.2-20	---	---	---	---	---			
955G:														
Muskingum-----------	0-3	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	3-20	0-40	50-80	10-25	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	0.0-0.5	.24	.28			
	20-34	0-50	30-80	10-27	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	0.0-0.5	.24	.28			
	34-44	---	---	---	---	0.01-0.2	---	---	---	---	---			
Berks---------------	0-4	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	4-20	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	20-28	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	28-39	---	---	---	---	0.2-20	---	---	---	---	---			
977F:														
Wellston------------	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
977F:														
Neotoma	0-10	5-50	25-80	6-27	1.20-1.45	0.6-6	0.10-0.20	0.0-2.9	3.0-6.0	.20	.43	4	7	38
	10-26	5-50	28-80	10-27	1.30-1.60	0.6-6	0.09-0.16	0.0-2.9	0.0-0.5	.20	.55			
	26-60	15-67	25-80	5-27	1.25-1.50	2-6	0.02-0.09	0.0-2.9	0.0-0.2	.20	.64			
	60-75	---	---	---	---	0.02-2	---	---	---	---	---			
986D:														
Wellston	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			
Berks	0-4	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	4-20	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	20-28	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	28-39	---	---	---	---	0.2-20	---	---	---	---	---			
986D2:														
Wellston	0-5	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	5-28	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	28-40	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	40-57	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	57-67	---	---	---	---	0.2-2	---	---	---	---	---			
Berks	0-1	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	1-17	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	17-25	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	25-39	---	---	---	---	0.2-20	---	---	---	---	---			
986D3:														
Wellston	0-3	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.43	.43	3	5	56
	3-26	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.37	.37			
	26-38	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	38-55	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	55-65	---	---	---	---	0.2-2	---	---	---	---	---			
Berks	0-1	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	0.5-2.0	.28	.32	2	6	48
	1-15	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	15-23	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	23-39	---	---	---	---	0.2-20	---	---	---	---	---			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi-bility group	Wind erodi-bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
986F:														
Wellston------------	0-8	3-25	50-84	13-27	1.30-1.50	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	8-31	3-25	45-79	18-35	1.30-1.65	0.6-2	0.17-0.20	0.0-2.9	0.5-1.0	.43	.43			
	31-43	3-40	30-70	15-30	1.30-1.60	0.6-2	0.10-0.14	0.0-2.9	0.0-0.5	.32	.37			
	43-60	25-55	30-60	15-30	1.30-1.60	0.6-2	0.06-0.12	0.0-2.9	0.0-0.1	.20	.24			
	60-70	---	---	---	---	0.2-2	---	---	---	---	---			
Berks---------------	0-4	3-50	30-75	5-23	1.20-1.50	0.6-6	0.08-0.12	0.0-2.9	1.0-3.0	.28	.32	3	6	48
	4-20	8-50	40-60	5-32	1.20-1.60	0.6-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	20-28	35-75	10-60	5-20	1.20-1.60	2-6	0.04-0.10	0.0-2.9	0.0-0.5	.17	.24			
	28-39	---	---	---	---	0.2-20	---	---	---	---	---			
1334A:														
Birds---------------	0-22	0-15	60-75	15-25	1.30-1.50	0.2-0.6	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	8	0
	22-80	3-25	55-70	18-27	1.40-1.60	0.2-0.6	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
1843A:														
Bonnie--------------	0-10	1-32	50-80	18-27	1.30-1.50	0.6-2	0.22-0.25	0.0-2.9	1.0-3.0	.43	.43	5	8	0
	10-27	1-32	50-80	18-27	1.40-1.60	0.2-0.6	0.21-0.24	0.0-2.9	0.0-1.0	.49	.49			
	27-80	3-42	40-79	18-30	1.40-1.60	0.2-0.6	0.14-0.24	0.0-2.9	0.0-1.0	.49	.49			
Petrolia------------	0-8	0-19	46-70	27-35	1.20-1.40	0.2-0.6	0.21-0.23	3.0-5.9	2.0-3.0	.32	.32	5	8	0
	8-55	0-19	46-70	27-35	1.35-1.45	0.2-0.6	0.18-0.20	3.0-5.9	0.2-1.0	.32	.32			
	55-80	0-40	40-80	15-35	1.40-1.60	0.2-0.6	0.18-0.20	3.0-5.9	0.2-1.0	.32	.32			
1846A:														
Karnak--------------	0-5	0-5	30-60	40-65	1.20-1.40	0.06-0.2	0.11-0.14	6.0-8.9	2.0-3.0	.24	.24	5	8	0
	5-50	0-5	30-60	40-65	1.30-1.50	0.01-0.2	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	50-80	0-5	40-60	35-60	1.35-1.55	0.06-0.2	0.10-0.18	6.0-8.9	0.0-0.5	.28	.28			
Cape----------------	0-10	0-10	40-70	30-60	1.30-1.60	0.06-0.2	0.15-0.19	3.0-5.9	1.0-3.0	.32	.32	5	8	0
	10-22	0-10	35-60	35-60	1.30-1.60	0.06-0.2	0.15-0.19	3.0-5.9	0.5-2.0	.32	.32			
	22-80	0-15	35-60	35-65	1.30-1.60	0.01-0.06	0.10-0.13	6.0-8.9	0.1-1.0	.28	.28			
3071A:														
Darwin--------------	0-14	0-10	45-55	40-45	1.20-1.40	0.01-0.06	0.11-0.14	9.0-25.0	4.0-5.0	.24	.24	5	4	86
	14-56	0-10	35-55	45-60	1.30-1.50	0.01-0.06	0.11-0.14	9.0-25.0	0.0-2.0	.24	.24			
	56-80	0-10	35-70	30-55	1.40-1.60	0.06-0.2	0.10-0.20	6.0-8.9	0.0-0.5	.24	.24			
3108A:														
Bonnie--------------	0-10	1-32	50-80	18-27	1.30-1.50	0.6-2	0.22-0.25	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	10-27	1-32	50-80	18-27	1.40-1.60	0.2-0.6	0.21-0.24	0.0-2.9	0.0-1.0	.49	.49			
	27-80	3-42	40-79	18-30	1.40-1.60	0.2-0.6	0.14-0.24	0.0-2.9	0.0-1.0	.49	.49			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
3180A:														
Dupo----------------	0-9	0-10	75-90	10-18	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	9-25	0-10	75-90	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
	25-80	0-7	33-60	30-60	1.35-1.60	0.06-0.2	0.08-0.19	6.0-8.9	1.0-2.0	.32	.32			
3288A:														
Petrolia------------	0-8	0-19	46-70	27-35	1.20-1.40	0.2-0.6	0.21-0.23	3.0-5.9	2.0-3.0	.32	.32	5	6	48
	8-55	0-19	46-70	27-35	1.35-1.45	0.2-0.6	0.18-0.20	3.0-5.9	0.2-1.0	.32	.32			
	55-80	0-40	40-80	15-35	1.40-1.60	0.2-0.6	0.18-0.20	3.0-5.9	0.2-1.0	.32	.32			
3331A:														
Haymond-------------	0-20	1-35	45-85	10-20	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	20-60	1-35	47-85	10-18	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	0.5-2.0	.49	.49			
	60-80	1-65	9-80	2-26	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
3333A:														
Wakeland------------	0-8	1-14	65-85	10-18	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-68	1-14	65-85	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
	68-80	3-41	49-85	10-18	1.35-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
3334A:														
Birds---------------	0-22	0-15	60-75	15-25	1.30-1.50	0.2-0.6	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	22-80	3-25	55-70	18-27	1.40-1.60	0.2-0.6	0.20-0.22	0.0-2.9	0.0-2.0	.49	.49			
3382A:														
Belknap-------------	0-7	1-27	65-85	8-18	1.30-1.55	0.2-2	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	7-59	1-27	65-85	8-25	1.40-1.60	0.2-2	0.21-0.24	0.0-2.9	0.0-2.0	.49	.49			
	59-80	5-27	65-85	8-30	1.35-1.65	0.2-2	0.14-0.24	0.0-2.9	0.0-1.0	.49	.49			
3420A:														
Piopolis------------	0-7	0-25	45-73	27-35	1.20-1.40	0.06-0.2	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	6	48
	7-37	0-25	45-73	27-35	1.40-1.60	0.06-0.2	0.18-0.20	3.0-5.9	0.1-2.0	.32	.32			
	37-80	0-30	45-75	25-38	1.50-1.70	0.06-0.2	0.18-0.20	3.0-5.9	0.1-2.0	.32	.32			
3426A:														
Karnak--------------	0-5	0-5	30-60	40-65	1.20-1.40	0.06-0.2	0.11-0.14	6.0-8.9	2.0-3.0	.24	.24	5	4	86
	5-50	0-5	30-60	40-65	1.30-1.50	0.01-0.2	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	50-80	0-5	40-60	35-60	1.35-1.55	0.06-0.2	0.10-0.18	6.0-8.9	0.0-0.5	.28	.28			
7460A:														
Ginat---------------	0-19	5-15	65-80	12-20	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	5	56
	19-34	5-15	51-73	22-34	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.32	.32			
	34-49	5-25	40-74	21-42	1.60-1.80	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.5	.32	.32			
	49-80	5-25	40-74	21-42	1.40-1.60	0.2-0.6	0.06-0.08	3.0-5.9	0.0-0.5	.32	.32			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
7462A:														
Sciotoville---------	0-8	5-35	50-70	15-27	1.30-1.45	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	8-24	5-45	30-70	20-35	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.37	.37			
	24-52	5-45	30-70	20-35	1.60-1.80	0.06-0.6	0.10-0.14	0.0-2.9	0.0-0.5	.32	.32			
	52-80	5-70	15-60	15-35	1.50-1.65	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.37	.49			
7462B:														
Sciotoville---------	0-8	5-35	50-70	15-27	1.30-1.45	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	8-24	5-45	30-70	20-35	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.37	.37			
	24-52	5-45	30-70	20-35	1.60-1.80	0.06-0.6	0.10-0.14	0.0-2.9	0.0-0.5	.32	.32			
	52-80	5-70	15-60	15-35	1.50-1.65	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.37	.49			
7462C2:														
Sciotoville---------	0-5	5-35	50-70	15-27	1.30-1.45	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	5-21	5-45	30-70	20-35	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.37	.37			
	21-49	5-45	30-70	20-35	1.60-1.80	0.06-0.6	0.10-0.14	0.0-2.9	0.0-0.5	.32	.32			
	49-80	5-70	15-60	15-35	1.50-1.65	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.37	.49			
7462C3:														
Sciotoville---------	0-3	5-35	50-70	15-27	1.30-1.45	0.6-2	0.18-0.22	0.0-2.9	0.5-1.0	.37	.37	3	5	56
	3-19	5-45	30-70	20-35	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.37	.37			
	19-47	5-45	30-70	20-35	1.60-1.80	0.06-0.6	0.10-0.14	0.0-2.9	0.0-0.5	.32	.32			
	47-80	5-70	15-60	15-35	1.50-1.65	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.37	.49			
7462D2:														
Sciotoville---------	0-5	5-35	50-70	15-27	1.30-1.45	0.6-2	0.18-0.22	0.0-2.9	1.0-3.0	.37	.37	4	5	56
	5-21	5-45	30-70	20-35	1.40-1.60	0.6-2	0.17-0.21	0.0-2.9	0.0-0.5	.37	.37			
	21-49	5-45	30-70	20-35	1.60-1.80	0.06-0.6	0.10-0.14	0.0-2.9	0.0-0.5	.32	.32			
	49-80	5-70	15-60	15-35	1.50-1.65	2-6	0.10-0.14	0.0-2.9	0.0-0.5	.37	.49			
7463B:														
Wheeling------------	0-10	5-59	28-80	12-27	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	10-49	5-59	28-80	12-35	1.30-1.50	0.6-2	0.08-0.16	0.0-2.9	0.0-0.5	.20	.24			
	49-80	70-98	1-15	1-15	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.20	.24			
7463C2:														
Wheeling------------	0-7	5-59	28-80	12-27	1.20-1.40	0.6-6	0.12-0.18	0.0-2.9	1.0-3.0	.32	.32	4	6	48
	7-46	5-59	28-80	12-35	1.30-1.50	0.6-2	0.08-0.16	0.0-2.9	0.0-0.5	.20	.24			
	46-80	70-98	1-15	1-15	1.30-1.50	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.20	.24			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Kf	T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
7711A:														
Hatfield------------	0-14	1-35	50-80	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	14-36	1-35	45-75	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-2.0	.37	.37			
	36-45	1-50	20-75	22-35	1.60-1.80	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.5	.37	.37			
	45-80	1-50	20-75	15-35	1.60-1.80	0.01-0.06	0.14-0.18	3.0-5.9	0.0-0.5	.49	.49			
7711B:														
Hatfield------------	0-14	1-35	50-80	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	14-36	1-35	45-75	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-2.0	.37	.37			
	36-45	1-50	20-75	22-35	1.60-1.80	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.5	.37	.37			
	45-80	1-50	20-75	15-35	1.60-1.80	0.01-0.06	0.14-0.18	3.0-5.9	0.0-0.5	.49	.49			
7711B2:														
Hatfield------------	0-11	1-35	50-80	15-27	1.30-1.45	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	4	6	48
	11-33	1-35	45-75	20-30	1.40-1.60	0.6-2	0.20-0.22	0.0-2.9	0.5-2.0	.37	.37			
	33-42	1-50	20-75	22-35	1.60-1.80	0.01-0.06	0.06-0.08	0.0-2.9	0.0-0.5	.37	.37			
	42-80	1-50	20-75	15-35	1.60-1.80	0.01-0.06	0.14-0.18	3.0-5.9	0.0-0.5	.49	.49			
8071A:														
Darwin--------------	0-14	0-10	45-55	40-45	1.20-1.40	0.01-0.06	0.11-0.14	9.0-25.0	4.0-5.0	.24	.24	5	4	86
	14-56	0-10	35-55	45-60	1.30-1.50	0.01-0.06	0.11-0.14	9.0-25.0	0.0-2.0	.24	.24			
	56-80	0-10	35-70	30-55	1.40-1.60	0.06-0.2	0.10-0.20	6.0-8.9	0.0-0.5	.24	.24			
8072A:														
Sharon--------------	0-13	1-50	30-79	10-20	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	0.5-3.0	.43	.43	5	5	56
	13-40	1-50	30-79	5-20	1.35-1.65	0.6-2	0.11-0.22	0.0-2.9	0.2-0.5	.49	.49			
	40-80	1-50	30-79	5-20	1.35-1.65	0.6-2	0.11-0.22	0.0-2.9	0.2-0.5	.49	.49			
8108A:														
Bonnie--------------	0-10	1-32	50-80	18-27	1.30-1.50	0.6-2	0.22-0.25	0.0-2.9	1.0-3.0	.43	.43	5	6	48
	10-27	1-32	50-80	18-27	1.40-1.60	0.2-0.6	0.21-0.24	0.0-2.9	0.0-1.0	.49	.49			
	27-80	3-42	40-79	18-30	1.40-1.60	0.2-0.6	0.14-0.24	0.0-2.9	0.0-1.0	.49	.49			
8180A:														
Dupo----------------	0-9	0-10	75-90	10-18	1.25-1.45	0.6-2	0.22-0.24	0.0-2.9	1.0-2.0	.43	.43	5	5	56
	9-25	0-10	75-90	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
	25-80	0-7	33-60	30-60	1.35-1.60	0.06-0.2	0.08-0.19	6.0-8.9	1.0-2.0	.32	.32			
8331A:														
Haymond-------------	0-20	1-35	45-85	10-20	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	20-60	1-35	47-85	10-18	1.30-1.50	0.6-2	0.20-0.24	0.0-2.9	0.5-2.0	.49	.49			
	60-80	1-65	9-80	2-26	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			

Table 20.—Physical Properties of the Soils—Continued

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T	Wind erodi- bility group	Wind erodi- bility index
	In	Pct	Pct	Pct	g/cc	In/hr	In/in	Pct	Pct					
8333A:														
Wakeland------------	0-8	1-14	68-85	10-18	1.30-1.50	0.6-2	0.22-0.24	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	8-68	1-14	68-85	10-18	1.30-1.50	0.6-2	0.20-0.22	0.0-2.9	0.0-1.0	.49	.49			
	68-80	3-41	49-85	10-18	1.35-1.55	0.6-2	0.20-0.22	0.0-2.9	0.0-0.5	.49	.49			
8382A:														
Belknap-------------	0-7	1-27	65-85	8-18	1.30-1.55	0.2-2	0.21-0.25	0.0-2.9	1.0-3.0	.43	.43	5	5	56
	7-59	1-27	65-85	8-25	1.40-1.60	0.2-2	0.21-0.24	0.0-2.9	0.0-2.0	.49	.49			
	59-80	5-27	49-85	8-30	1.35-1.65	0.2-2	0.14-0.24	0.0-2.9	0.0-1.0	.49	.49			
8420A:														
Piopolis------------	0-7	0-25	45-73	27-35	1.20-1.40	0.06-0.2	0.21-0.23	3.0-5.9	1.0-3.0	.32	.32	5	6	48
	7-37	0-25	45-73	27-35	1.40-1.60	0.06-0.2	0.18-0.20	3.0-5.9	0.1-2.0	.32	.32			
	37-80	0-30	45-75	25-38	1.50-1.70	0.06-0.2	0.18-0.20	3.0-5.9	0.1-2.0	.32	.32			
8426A:														
Karnak--------------	0-5	0-5	30-60	38-65	1.20-1.40	0.06-0.2	0.11-0.14	6.0-8.9	2.0-3.0	.24	.24	5	4	86
	5-50	0-5	30-60	40-65	1.30-1.50	0.01-0.2	0.09-0.13	6.0-8.9	0.0-0.5	.28	.28			
	50-80	0-5	40-60	35-60	1.35-1.55	0.06-0.2	0.10-0.18	6.0-8.9	0.0-0.5	.28	.28			
8427B:														
Burnside------------	0-17	5-55	25-75	20-27	1.20-1.40	0.6-2	0.18-0.22	0.0-2.9	1.0-2.0	.32	.32	3	6	48
	17-57	5-60	25-75	15-27	1.40-1.60	0.6-2	0.09-0.14	0.0-2.9	0.0-1.0	.28	.32			
	57-67	---	---	---	---	0.02-2	---	---	---	---	---			
8787A:														
Banlic--------------	0-8	1-15	70-85	12-18	1.40-1.60	0.2-0.6	0.20-0.24	0.0-2.9	1.0-2.0	.43	.43	3	5	56
	8-21	1-15	70-85	12-18	1.40-1.60	0.06-0.2	0.20-0.22	0.0-2.9	0.2-0.8	.49	.49			
	21-55	1-15	70-85	10-18	1.65-1.90	0.06-0.2	0.10-0.11	0.0-2.9	0.1-0.5	.49	.49			
	55-80	5-15	70-80	12-18	1.50-1.70	0.2-0.6	0.05-0.08	0.0-2.9	0.1-0.3	.55	.55			
W.														
Water														

Table 21.—Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equiva-lent
	In	pH	meq/100 g	meq/100 g	Pct
79B:					
Menfro----------	0-10	5.1-7.3	10-16	---	0
	10-62	4.5-7.3	15-20	11-15	0
	62-80	4.5-7.3	5.0-10	4.0-8.0	0
79C2:					
Menfro----------	0-7	5.1-7.3	10-16	---	0
	7-59	4.5-7.3	15-20	11-15	0
	59-80	4.5-7.3	5.0-10	4.0-8.0	0
79C3:					
Menfro----------	0-5	5.1-7.3	10-16	---	0
	5-57	4.5-7.3	15-20	11-15	0
	57-80	4.5-7.3	5.0-10	4.0-8.0	0
79D2:					
Menfro----------	0-7	5.1-7.3	10-16	---	0
	7-59	4.5-7.3	15-20	11-15	0
	59-80	4.5-7.3	5.0-10	4.0-8.0	0
79D3:					
Menfro----------	0-5	5.1-7.3	10-16	---	0
	5-57	4.5-7.3	15-20	11-15	0
	57-80	4.5-7.3	5.0-10	4.0-8.0	0
79E2:					
Menfro----------	0-7	5.1-7.3	10-16	---	0
	7-59	4.5-7.3	15-20	11-15	0
	59-80	4.5-7.3	5.0-10	4.0-8.0	0
79E3:					
Menfro----------	0-5	5.1-7.3	10-16	---	0
	5-57	4.5-7.3	15-20	11-15	0
	57-80	4.5-7.3	5.0-10	4.0-8.0	0
79F:					
Menfro----------	0-10	5.1-7.3	10-16	---	0
	10-62	4.5-7.3	15-20	11-15	0
	62-80	4.5-7.3	5.0-10	4.0-8.0	0
99G.					
Sandstone and Limestone Rock Land					
164A:					
Stoy------------	0-13	4.5-7.3	14-20	---	0
	13-32	4.5-5.5	16-22	12-17	0
	32-45	4.5-5.5	16-22	12-17	0
	45-80	4.5-6.0	12-17	9.0-13	0
164B:					
Stoy------------	0-13	4.5-7.3	14-20	---	0
	13-32	4.5-5.5	16-22	12-17	0
	32-45	4.5-5.5	16-22	12-17	0
	45-80	4.5-6.0	12-17	9.0-13	0

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	meq/100 g	meq/100 g	Pct
175A:					
Lamont----------	0-11	5.1-7.3	10-15	---	0
	11-17	5.1-7.3	10-15	---	0
	17-27	5.1-6.5	10-15	---	0
	27-80	5.1-7.3	5.0-10	---	0
175B:					
Lamont----------	0-11	5.1-7.3	10-15	---	0
	11-17	5.1-7.3	10-15	---	0
	17-27	5.1-6.5	10-15	---	0
	27-80	5.1-7.3	5.0-10	---	0
175C2:					
Lamont----------	0-5	5.1-7.3	10-15	---	0
	5-20	5.1-7.3	10-15	---	0
	20-53	5.1-6.5	10-15	---	0
	53-80	5.1-7.3	5.0-10	---	0
214B:					
Hosmer----------	0-7	4.5-7.3	12-20	6.0-15	0
	7-28	4.5-5.5	12-23	8.0-15	0
	28-67	4.5-6.0	9.0-21	6.0-14	0
	67-80	4.5-6.5	9.0-16	6.0-11	0
214C2:					
Hosmer----------	0-4	4.5-7.3	9.0-20	6.0-14	0
	4-25	4.5-5.5	12-23	8.0-15	0
	25-64	4.5-6.0	9.0-21	6.0-14	0
	64-80	4.5-6.5	9.0-16	6.0-11	0
214C3:					
Hosmer----------	0-2	4.5-7.3	9.0-20	6.0-14	0
	2-23	4.5-5.5	12-23	8.0-15	0
	23-62	4.5-6.0	9.0-21	6.0-14	0
	62-80	4.5-6.5	9.0-16	6.0-11	0
214D2:					
Hosmer----------	0-4	4.5-7.3	9.0-20	6.0-14	0
	4-25	4.5-5.5	12-23	8.0-15	0
	25-64	4.5-6.0	9.0-21	7.0-14	0
	64-80	4.5-6.5	9.0-16	7.0-11	0
214D3:					
Hosmer----------	0-2	4.5-7.3	9.0-20	6.0-14	0
	2-23	4.5-5.5	12-23	8.0-15	0
	23-62	4.5-6.0	9.0-21	7.0-14	0
	62-80	4.5-6.5	9.0-16	7.0-11	0
301B:					
Grantsburg------	0-11	3.6-6.5	9.0-20	7.0-15	0
	11-24	3.6-5.5	---	10-18	0
	24-38	3.6-5.5	---	11-20	0
	38-61	3.6-5.5	---	10-18	0
	61-80	3.6-6.0	10-20	7.0-15	0

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equiva-lent
	In	pH	meq/100 g	meq/100 g	Pct
301C2:					
Grantsburg------	0-7	3.6-6.5	9.0-20	7.0-15	0
	7-21	3.6-5.5	---	10-18	0
	21-35	3.6-5.5	---	11-20	0
	35-58	3.6-5.5	---	10-18	0
	58-80	3.6-6.0	10-20	7.0-15	0
301C3:					
Grantsburg------	0-3	3.6-6.5	9.0-20	7.0-15	0
	3-19	3.6-5.5	---	10-18	0
	19-33	3.6-5.5	---	11-20	0
	33-56	3.6-5.5	---	10-18	0
	56-80	3.6-6.0	10-20	7.0-15	0
301D2:					
Grantsburg------	0-7	3.6-6.5	9.0-20	7.0-15	0
	7-21	3.6-5.5	---	10-18	0
	21-35	3.6-5.5	---	11-20	0
	35-58	3.6-5.5	---	10-18	0
	58-80	3.6-6.0	10-20	7.0-15	0
301D3:					
Grantsburg------	0-3	3.6-6.5	9.0-20	7.0-15	0
	3-19	3.6-5.5	---	10-18	0
	19-33	3.6-5.5	---	11-20	0
	33-56	3.6-5.5	---	10-18	0
	56-80	3.6-6.0	10-20	7.0-15	0
335B:					
Robbs-----------	0-13	4.5-6.0	7.0-15	4.0-10	0
	13-26	4.5-6.0	14-24	10-18	0
	26-49	4.5-5.5	14-23	10-19	0
	49-80	5.1-5.5	9.0-15	7.0-11	0
339C:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
339D:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
339D2:					
Wellston--------	0-5	5.1-6.5	8.0-16	6.0-12	0
	5-28	4.5-6.0	11-20	8.0-15	0
	28-40	4.5-6.0	11-15	8.0-11	0
	40-57	4.5-6.0	11-15	8.0-11	0
	57-67	---	---	---	---

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	meq/100 g	meq/100 g	Pct
339F:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
340C2:					
Zanesville------	0-4	4.5-7.3	9.0-18	7.0-14	0
	4-19	4.5-6.0	11-21	8.0-16	0
	19-39	4.5-6.0	10-20	7.0-15	0
	39-57	4.5-6.0	10-20	7.0-14	0
	57-67	---	---	---	---
340C3:					
Zanesville------	0-2	4.5-7.3	9.0-18	7.0-14	0
	2-17	4.5-6.0	11-21	8.0-16	0
	17-37	4.5-6.0	10-20	8.0-15	0
	37-55	4.5-6.0	10-20	7.0-14	0
	55-65	---	---	---	---
340D:					
Zanesville------	0-7	4.5-7.3	9.0-18	7.0-14	0
	7-22	4.5-6.0	11-21	8.0-16	0
	22-42	4.5-6.0	10-20	8.0-15	0
	42-60	4.5-6.0	10-20	7.0-14	0
	60-70	---	---	---	---
340D2:					
Zanesville------	0-4	4.5-7.3	9.0-18	7.0-14	0
	4-19	4.5-6.0	11-21	8.0-16	0
	19-39	4.5-6.0	10-20	8.0-15	0
	39-57	4.5-6.0	10-20	7.0-14	0
	57-67	---	---	---	---
340D3:					
Zanesville------	0-2	4.5-7.3	9.0-18	7.0-14	0
	2-17	4.5-6.0	11-21	8.0-16	0
	17-37	4.5-6.0	10-20	8.0-15	0
	37-55	4.5-6.0	10-20	7.0-14	0
	55-65	---	---	---	---
477C2:					
Winfield--------	0-6	5.6-7.3	10-16	---	0
	6-10	5.6-7.3	10-16	---	0
	10-53	4.5-6.5	15-21	11-16	0
	53-80	5.1-7.3	5.0-10	4.0-8.0	0
691D:					
Beasley---------	0-7	4.5-7.3	6.0-16	4.0-12	0
	7-14	4.5-7.3	20-35	14-26	0
	14-40	6.6-8.4	20-35	---	0-5
	40-80	---	---	---	---
691F:					
Beasley---------	0-7	4.5-7.3	6.0-16	4.0-12	0
	7-14	4.5-7.3	20-35	14-26	0
	14-40	6.6-8.4	20-35	---	0-5
	40-80	---	---	---	---

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equiva-lent
	In	pH	meq/100 g	meq/100 g	Pct
793F:					
Berks-----------	0-4	3.6-6.5	5.0-18	3.0-14	0
	4-20	3.6-6.5	5.0-15	3.0-11	0
	20-28	3.6-6.5	5.0-10	3.0-7.0	0
	28-39	---	---	---	0
Muskingum-------	0-3	4.5-6.0	7.0-18	5.0-13	0
	3-20	4.5-6.0	5.0-15	4.0-11	0
	20-34	4.5-5.5	5.0-15	4.0-11	0
	34-44	---	---	---	---
Weikert---------	0-2	4.5-6.0	9.0-19	7.0-15	0
	2-5	3.6-6.0	3.0-15	2.0-10	0
	5-13	3.6-6.0	3.0-15	2.0-10	0
	13-23	---	---	---	---
793G:					
Berks-----------	0-4	3.6-6.5	5.0-18	3.0-14	0
	4-20	3.6-6.5	5.0-15	3.0-11	0
	20-28	3.6-6.5	5.0-10	3.0-7.0	0
	28-39	---	---	---	0
Muskingum-------	0-3	4.5-6.0	7.0-18	5.0-13	0
	3-20	4.5-6.0	5.0-15	4.0-11	0
	20-34	4.5-5.5	5.0-15	4.0-11	0
	34-44	---	---	---	---
Weikert---------	0-2	4.5-6.0	9.0-19	7.0-15	0
	2-5	3.6-6.0	3.0-15	2.0-10	0
	5-13	3.6-6.0	3.0-15	2.0-10	0
	13-23	---	---	---	---
801B:					
Orthents, silty-	0-80	5.1-6.5	3.0-23	---	0
802D:					
Orthents, loamy-	0-6	5.6-7.3	7.0-18	---	0
	6-80	5.6-7.3	7.0-20	---	0
802F:					
Orthents, loamy-	0-6	5.6-7.3	7.0-18	---	0
	6-80	5.6-7.3	7.0-20	---	0
834F:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
Westmore--------	0-6	5.1-7.3	11-22	---	0
	6-22	4.5-6.0	16-23	11-17	0
	22-62	5.1-7.8	21-30	---	0
	62-72	---	---	---	---
864.					
Pits, quarries					

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	meq/100 g	meq/100 g	Pct
865. Pits, gravel					
940D2:					
Zanesville------	0-4	4.5-6.0	9.0-18	7.0-14	0
	4-19	4.5-6.0	11-21	8.0-16	0
	19-39	4.5-6.0	10-20	8.0-15	0
	39-57	4.5-6.0	10-20	7.0-14	0
	57-67	---	---	---	---
Westmore--------	0-3	5.1-7.3	11-22	---	0
	3-19	4.5-6.0	16-23	11-17	0
	19-59	5.1-7.8	21-30	---	0
	59-69	---	---	---	---
955F:					
Muskingum-------	0-3	4.5-6.0	7.0-18	5.0-13	0
	3-20	4.5-6.0	5.0-15	4.0-11	0
	20-34	4.5-5.5	5.0-15	4.0-11	0
	34-44	---	---	---	---
Berks-----------	0-4	3.6-6.5	5.0-18	3.0-14	0
	4-20	3.6-6.5	5.0-15	3.0-11	0
	20-28	3.6-6.5	5.0-10	3.0-7.0	0
	28-39	---	---	---	0
955G:					
Muskingum-------	0-3	4.5-6.0	7.0-18	5.0-13	0
	3-20	4.5-6.0	5.0-15	4.0-11	0
	20-34	4.5-5.5	5.0-15	4.0-11	0
	34-44	---	---	---	---
Berks-----------	0-4	3.6-6.5	5.0-18	3.0-15	0
	4-20	3.6-6.5	5.0-15	3.0-11	0
	20-28	3.6-6.5	5.0-10	3.0-7.0	0
	28-39	---	---	---	0
977F:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
Neotoma---------	0-10	5.1-7.0	11-28	8.3-21	0
	10-26	3.6-6.5	6.0-17	4.5-13	0
	26-60	4.5-6.5	3.0-17	2.3-13	0
	60-75	---	---	---	---
986D:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
Berks-----------	0-4	3.6-6.5	5.0-18	3.0-15	0
	4-20	3.6-6.5	5.0-15	3.0-11	0
	20-28	3.6-6.5	5.0-10	3.0-7.0	0
	28-39	---	---	---	0

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	meq/100 g	meq/100 g	Pct
986D2:					
Wellston--------	0-5	5.1-6.5	8.0-16	6.0-12	0
	5-28	4.5-6.0	11-20	8.0-15	0
	28-40	4.5-6.0	11-15	8.0-11	0
	40-57	4.5-6.0	11-15	8.0-11	0
	57-67	---	---	---	---
Berks-----------	0-1	3.6-6.5	5.0-18	3.0-14	0
	1-17	3.6-6.5	5.0-15	3.0-11	0
	17-25	3.6-6.5	5.0-10	3.0-7.0	0
	25-39	---	---	---	0
986D3:					
Wellston--------	0-3	5.1-6.5	8.0-16	6.0-12	0
	3-26	4.5-6.0	11-20	8.0-15	0
	26-38	4.5-6.0	11-15	8.0-11	0
	38-55	4.5-6.0	11-15	8.0-11	0
	55-65	---	---	---	---
Berks-----------	0-1	3.6-6.5	5.0-18	3.0-14	0
	1-15	3.6-6.5	5.0-15	3.0-11	0
	15-23	3.6-6.5	5.0-10	3.0-7.0	0
	23-39	---	---	---	0
986F:					
Wellston--------	0-8	5.1-6.5	8.0-16	6.0-12	0
	8-31	4.5-6.0	11-20	8.0-15	0
	31-43	4.5-6.0	11-15	8.0-11	0
	43-60	4.5-6.0	11-15	8.0-11	0
	60-70	---	---	---	---
Berks-----------	0-4	3.6-6.5	5.0-18	3.0-15	0
	4-20	3.6-6.5	5.0-15	3.0-11	0
	20-28	3.6-6.5	5.0-10	3.0-7.0	0
	28-39	---	---	---	0
1334A:					
Birds-----------	0-22	5.6-7.8	11-21	---	0
	22-80	5.1-7.8	11-20	---	0
1843A:					
Bonnie----------	0-10	4.5-7.3	13-20	---	0
	10-27	4.5-5.5	---	8.0-13	0
	27-80	4.5-7.8	11-16	8.0-13	0
Petrolia--------	0-8	5.6-7.8	20-25	---	0
	8-55	5.6-7.3	15-22	---	0
	55-80	5.1-7.8	10-20	---	0
1846A:					
Karnak----------	0-5	5.6-6.0	28-42	---	0
	5-50	5.6-7.3	24-37	---	0
	50-80	5.6-7.8	21-37	---	0
Cape------------	0-10	4.5-7.3	20-30	15-22	0
	10-22	3.6-5.5	---	24-40	0
	22-80	3.6-5.5	---	21-40	0

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	meq/100 g	meq/100 g	Pct
3071A:					
Darwin----------	0-14	6.1-7.8	32-37	---	0
	14-56	6.1-7.8	27-40	---	0
	56-80	6.6-8.4	18-34	---	0-10
3108A:					
Bonnie----------	0-10	4.5-7.3	13-20	---	0
	10-27	4.5-5.5	---	8.0-13	0
	27-80	4.5-7.8	11-16	8.0-13	0
3180A:					
Dupo------------	0-9	5.6-7.8	8.0-15	---	0
	9-25	5.6-7.8	6.0-12	---	0
	25-80	6.6-7.8	21-35	---	0-10
3288A:					
Petrolia--------	0-8	5.6-7.8	20-25	---	0
	8-55	5.6-7.3	15-22	---	0
	55-80	5.1-7.8	10-20	---	0
3331A:					
Haymond---------	0-20	5.6-7.8	7.0-20	---	0
	20-60	5.6-7.8	5.0-12	---	0
	60-80	6.1-7.8	3.0-16	---	0
3333A:					
Wakeland--------	0-8	5.6-7.3	7.0-20	---	0
	8-68	5.6-7.8	5.0-15	---	0
	68-80	5.6-7.8	5.0-15	---	0
3334A:					
Birds-----------	0-22	5.6-7.8	11-21	---	0
	22-80	5.1-7.8	11-20	---	0
3382A:					
Belknap---------	0-7	4.5-7.3	7.0-17	---	0
	7-59	4.5-5.5	---	4.0-14	0
	59-80	4.5-7.3	5.0-20	2.0-15	0
3420A:					
Piopolis--------	0-7	5.1-7.3	20-25	15-19	0
	7-37	4.5-5.5	15-20	11-16	0
	37-80	5.1-7.3	10-20	8.0-16	0
3426A:					
Karnak----------	0-5	5.6-6.5	28-42	---	0
	5-50	5.6-7.3	24-37	---	0
	50-80	5.6-7.8	24-37	---	0
7460A:					
Ginat-----------	0-19	4.5-7.3	10-22	---	0
	19-34	4.5-6.0	---	10-22	0
	34-49	4.5-5.5	---	10-21	0
	49-80	4.5-7.8	---	10-21	0

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equiva-lent
	In	pH	meq/100 g	meq/100 g	Pct
7462A:					
Sciotoville-----	0-8	5.1-6.5	10-15	---	0
	8-24	4.5-5.5	---	9.0-14	0
	24-52	4.5-6.0	12-19	9.0-14	0
	52-80	5.1-6.5	9.0-19	6.0-16	0
7462B:					
Sciotoville-----	0-8	5.1-6.5	10-15	---	0
	8-24	4.5-5.5	---	9.0-14	0
	24-52	4.5-6.0	12-19	9.0-14	0
	52-80	5.1-6.5	9.0-19	6.0-16	0
7462C2:					
Sciotoville-----	0-5	5.1-6.5	10-15	---	0
	5-21	4.5-5.5	---	9.0-14	0
	21-49	4.5-6.0	12-19	9.0-14	0
	49-80	5.1-6.5	9.0-19	6.0-16	0
7462C3:					
Sciotoville-----	0-3	5.1-6.5	10-15	---	0
	3-19	4.5-5.5	---	9.0-14	0
	19-47	4.5-6.0	12-19	9.0-14	0
	47-80	5.1-6.5	9.0-19	6.0-16	0
7462D2:					
Sciotoville-----	0-5	5.1-6.5	10-15	---	0
	5-21	4.5-5.5	---	9.0-14	0
	21-49	4.5-6.0	12-19	9.0-14	0
	49-80	5.1-6.5	9.0-19	6.0-16	0
7463B:					
Wheeling--------	0-10	5.1-6.5	6.0-15	---	0
	10-49	4.5-6.0	9.0-21	---	0
	49-80	5.1-6.0	1.0-8.0	---	0
7463C2:					
Wheeling--------	0-7	5.1-6.5	6.0-15	---	0
	7-46	4.5-6.0	9.0-21	---	0
	46-80	5.1-6.0	1.0-8.0	---	0
7711A:					
Hatfield--------	0-14	4.5-7.3	10-15	7.0-11	0
	14-36	4.5-6.0	---	9.0-14	0
	36-45	4.5-6.5	---	10-16	0
	45-80	5.1-7.8	9.0-20	7.0-15	0
7711B:					
Hatfield--------	0-14	4.5-7.3	10-15	7.0-11	0
	14-36	4.5-6.0	---	9.0-14	0
	36-45	4.5-6.5	---	10-16	0
	45-80	5.1-7.8	9.0-20	7.0-15	0
7711B2:					
Hatfield--------	0-11	4.5-7.3	10-15	7.0-11	0
	11-33	4.5-6.0	---	9.0-14	0
	33-42	4.5-6.5	---	10-16	0
	42-80	5.1-7.8	9.0-20	7.0-15	0

Table 21.—Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Soil reaction	Cation-exchange capacity	Effective cation-exchange capacity	Calcium carbonate equivalent
	In	pH	meq/100 g	meq/100 g	Pct
8071A:					
Darwin----------	0-14	6.1-7.8	32-37	---	0
	14-56	6.1-7.8	27-40	---	0
	56-80	6.6-8.4	18-34	---	0-10
8072A:					
Sharon----------	0-13	4.5-7.3	7.0-20	5.0-15	0
	13-40	4.5-7.3	3.0-10	2.0-8.0	0
	40-80	4.5-7.3	3.0-10	2.0-8.0	0
8108A:					
Bonnie----------	0-10	4.5-7.3	13-20	---	0
	10-27	4.5-5.5	---	8.0-13	0
	27-80	4.5-7.8	11-16	8.0-13	0
8180A:					
Dupo------------	0-9	5.6-7.8	8.0-15	---	0
	9-25	5.6-7.8	6.0-12	---	0
	25-80	6.6-7.8	21-35	---	0-10
8331A:					
Haymond---------	0-20	5.6-7.8	7.0-20	---	0
	20-60	5.6-7.8	5.0-12	---	0
	60-80	6.1-7.8	3.0-16	---	0
8333A:					
Wakeland--------	0-8	5.6-7.3	7.0-20	---	0
	8-68	5.6-7.8	5.0-15	---	0
	68-80	5.6-7.8	5.0-15	---	0
8382A:					
Belknap---------	0-7	4.5-7.3	7.0-17	---	0
	7-59	4.5-5.5	---	4.0-14	0
	59-80	4.5-7.3	5.0-20	2.0-15	0
8420A:					
Piopolis--------	0-7	5.1-6.5	20-25	15-19	0
	7-37	4.5-5.5	15-20	13-20	0
	37-80	5.1-7.3	10-20	8.0-16	0
8426A:					
Karnak----------	0-5	5.6-6.5	28-42	---	0
	5-50	5.6-7.3	24-37	---	0
	50-80	5.6-7.8	21-37	---	0
8427B:					
Burnside--------	0-17	4.5-6.0	14-20	9.0-14	0
	17-57	4.5-5.5	9.0-16	6.0-12	0
	57-67	---	---	---	---
8787A:					
Banlic----------	0-8	5.1-7.8	7.0-13	---	0
	8-21	4.5-7.3	6.0-10	5.0-7.0	0
	21-55	4.5-5.5	6.0-10	5.0-7.0	0
	55-80	4.5-6.5	6.0-10	5.0-7.0	0
W.					
Water					

Table 22.—Water Features

(See text for definitions of terms used in this table. "Upper limit," "Lower limit," and "Surface water depth" are in feet. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
79B:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79C2:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79C3:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79D2:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79D3:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79E2:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79E3:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
79F:										
Menfro	B	---	> 6.0	> 6.0	---	---	---	None	---	None
99G. Sandstone and Limestone Rock Land										
164A:										
Stoy	C	Jan-May	1.0-3.0	3.0-6.0	Perched	---	---	None	---	None
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	None
164B:										
Stoy	C	Jan-May	1.0-3.0	3.0-6.0	Perched	---	---	None	---	None
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	None
175A:										
Lamont	B	---	> 6.0	> 6.0	---	---	---	None	---	None
175B:										
Lamont	B	---	> 6.0	> 6.0	---	---	---	None	---	None

Table 22.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
175C2:										
Lamont	B	---	> 6.0	> 6.0	---	---	---	None	---	None
214B:										
Hosmer	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
214C2:										
Hosmer	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
214C3:										
Hosmer	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
214D2:										
Hosmer	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
214D3:										
Hosmer	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
301B:										
Grantsburg	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
301C2:										
Grantsburg	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
301C3:										
Grantsburg	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
301D2:										
Grantsburg	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
301D3:										
Grantsburg	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
335B:										
Robbs	D	Jan-May	1.0-3.0	3.0-6.0	Perched	---	---	None	---	None
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	None

Table 22.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table depth			Ponding			Flooding	
			Upper limit	Lower limit	Water table kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	Ft		Ft				
339C:										
Wellston--------------	B	---	> 6.0	> 6.0	---	---	---	None	---	None
339D:										
Wellston--------------	B	---	> 6.0	> 6.0	---	---	---	None	---	None
339D2:										
Wellston--------------	B	---	> 6.0	> 6.0	---	---	---	None	---	None
339F:										
Wellston--------------	B	---	> 6.0	> 6.0	---	---	---	None	---	None
340C2:										
Zanesville------------	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
340C3:										
Zanesville------------	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
340D:										
Zanesville------------	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
340D2:										
Zanesville------------	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
340D3:										
Zanesville------------	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
477C2:										
Winfield--------------	B	Jan-Apr	2.0-3.5	> 6.0	Apparent	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
691D:										
Beasley---------------	C	---	> 6.0	> 6.0	---	---	---	None	---	None
691F:										
Beasley---------------	C	---	> 6.0	> 6.0	---	---	---	None	---	None

Table 22.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
793F:										
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
Muskingum	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Weikert	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
793G:										
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
Muskingum	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Weikert	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
801B:										
Orthents, silty	C	---	> 6.0	> 6.0	---	---	---	None	---	None
802D:										
Orthents, loamy	B	---	> 6.0	> 6.0	---	---	---	None	---	None
802F:										
Orthents, loamy	B	---	> 6.0	> 6.0	---	---	---	None	---	None
834F:										
Wellston	B	---	> 6.0	> 6.0	---	---	---	None	---	None
Westmore	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
864.										
Pits, quarries										
865.										
Pits, gravel										
940D2:										
Zanesville	C	Jan-Apr	1.5-3.5	3.5-6.0	Perched	---	---	None	---	None
		May-Dec	> 6.0	> 6.0	---	---	---	None	---	None
Westmore	C	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
955F:										
Muskingum	C	---	> 6.0	> 6.0	---	---	---	None	---	None
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None

Table 22.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
955G:										
Muskingum	C	---	> 6.0	> 6.0	---	---	---	None	---	None
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
977F:										
Wellston	B	---	> 6.0	> 6.0	---	---	---	None	---	None
Neotoma	B	Jan-Dec	> 6.0	> 6.0	---	---	---	None	---	None
986D:										
Wellston	B	---	> 6.0	> 6.0	---	---	---	None	---	None
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
986D2:										
Wellston	B	---	> 6.0	> 6.0	---	---	---	None	---	None
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
986D3:										
Wellston	B	---	> 6.0	> 6.0	---	---	---	None	---	None
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
986F:										
Wellston	B	---	> 6.0	> 6.0	---	---	---	None	---	None
Berks	C	---	> 6.0	> 6.0	---	---	---	None	---	None
1334A:										
Birds	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Dec	0.0-6.0	> 6.0	Apparent	---	---	---	---	---
1843A:										
Bonnie	D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Dec	0.0-6.0	> 6.0	Apparent	---	---	---	---	---
Petrolia	D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Dec	0.0-6.0	> 6.0	Apparent	---	---	---	---	---

Table 22.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
1846A:										
Karnak	D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Dec	0.0-6.0	> 6.0	Apparent	---	---	---	---	---
Cape	D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-2.0	Long	Frequent	Long	Frequent
		Jul-Dec	0.0-6.0	> 6.0	Apparent	---	---	---	---	---
3071A:										
Darwin	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
3108A:										
Bonnie	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
3180A:										
Dupo	C	Jan-May	0.5-2.0	2.0-6.0	Perched	---	---	None	Brief	Frequent
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
3288A:										
Petrolia	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
3331A:										
Haymond	B	Jan-May	> 6.0	> 6.0	---	---	---	None	Brief	Frequent
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
3333A:										
Wakeland	C	Jan-May	0.5-2.0	> 6.0	Apparent	---	---	None	Brief	Frequent
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
3334A:										
Birds	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
3382A:										
Belknap	C	Jan-May	0.5-2.0	> 6.0	Apparent	---	---	None	Brief	Frequent
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
3420A:										
Piopolis	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---

Table 22.—Water Features—Continued

Map symbol and soil name	Hydro- logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
3426A:										
Karnak----------------	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-1.0	Brief	Frequent	Brief	Frequent
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
7460A:										
Ginat-----------------	D	Jan-Jun	0.0-1.0	1.0-6.0	Perched	0.0-0.5	Brief	Occasional	---	Rare
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
7462A:										
Sciotoville-----------	C	Jan-Apr	1.5-3.0	3.0-6.0	Perched	---	---	None	---	Rare
		May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7462B:										
Sciotoville-----------	C	Jan-Apr	1.5-3.0	3.0-6.0	Perched	---	---	None	---	Rare
		May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7462C2:										
Sciotoville-----------	C	Jan-Apr	1.5-3.0	3.0-6.0	Perched	---	---	None	---	Rare
		May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7462C3:										
Sciotoville-----------	C	Jan-Apr	1.5-3.0	3.0-6.0	Perched	---	---	None	---	Rare
		May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7462D2:										
Sciotoville-----------	C	Jan-Apr	1.5-3.0	3.0-6.0	Perched	---	---	None	---	Rare
		May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7463B:										
Wheeling--------------	B	Jan-May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7463C2:										
Wheeling--------------	B	Jan-May	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7711A:										
Hatfield--------------	C	Jan-May	0.5-2.0	2.0-6.0	Perched	---	---	None	---	Rare
		Jun	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---

Table 22.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
7711B:										
Hatfield----------------	C	Jan-May	0.5-2.0	2.0-6.0	Perched	---	---	None	---	Rare
		Jun	> 6.0	> 6.0	---	---	---	None	---	Rare
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
7711B2:										
Hatfield----------------	C	Jan-May	0.5-2.0	2.0-6.0	Perched	---	---	None	---	Rare
		Jun-Nov	> 6.0	> 6.0	---	---	---	None	---	---
8071A:										
Darwin------------------	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
8072A:										
Sharon------------------	B	Jan-Apr	3.0-6.0	> 6.0	Apparent	---	---	None	Brief	Occasional
		May	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
8108A:										
Bonnie------------------	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
8180A:										
Dupo--------------------	C	Jan-May	0.5-2.0	2.0-6.0	Perched	---	---	None	Brief	Occasional
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
8331A:										
Haymond-----------------	B	Jan-May	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
8333A:										
Wakeland----------------	C	Jan-May	0.5-2.0	> 6.0	Apparent	---	---	None	Brief	Occasional
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
8382A:										
Belknap-----------------	C/D	Jan-May	0.5-2.0	> 6.0	Apparent	---	---	None	Brief	Occasional
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
8420A:										
Piopolis----------------	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---

Table 22.—Water Features—Continued

Map symbol and soil name	Hydrologic group	Month	Water table depth: Upper limit	Water table depth: Lower limit	Water table depth: Water table kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft	Ft		Ft				
8426A:										
Karnak----------------	C/D	Jan-Jun	0.0-1.0	> 6.0	Apparent	0.0-0.5	Brief	Occasional	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	---	---	---
8427B:										
Burnside--------------	B	Jan-May	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jun-Dec	> 6.0	> 6.0	---	---	---	None	---	---
8787A:										
Banlic----------------	C	Jan-May	0.5-2.0	2.0-6.0	Perched	---	---	None	Brief	Occasional
		Jun	> 6.0	> 6.0	---	---	---	None	Brief	Occasional
		Jul-Dec	> 6.0	> 6.0	---	---	---	None	---	---
W.										
Water										

Table 23.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
79B:						
Menfro------------	---	---	---	High	Low	Moderate
79C2:						
Menfro------------	---	---	---	High	Low	Moderate
79C3:						
Menfro------------	---	---	---	High	Low	Moderate
79D2:						
Menfro------------	---	---	---	High	Low	Moderate
79D3:						
Menfro------------	---	---	---	High	Low	Moderate
79E2:						
Menfro------------	---	---	---	High	Low	Moderate
79E3:						
Menfro------------	---	---	---	High	Low	Moderate
79F:						
Menfro------------	---	---	---	High	Low	Moderate
99G.						
Sandstone and Limestone Rock Land						
164A:						
Stoy--------------	---	---	---	High	High	High
164B:						
Stoy--------------	---	---	---	High	High	High
175A:						
Lamont------------	---	---	---	Moderate	Low	Moderate
175B:						
Lamont------------	---	---	---	Moderate	Low	Moderate
175C2:						
Lamont------------	---	---	---	Moderate	Low	Moderate
214B:						
Hosmer------------	Fragipan	20-36	Weakly cemented	High	Moderate	High
214C2:						
Hosmer------------	Fragipan	20-36	Weakly cemented	High	Moderate	High
214C3:						
Hosmer------------	Fragipan	20-36	Weakly cemented	High	Moderate	High
214D2:						
Hosmer------------	Fragipan	20-36	Weakly cemented	High	Moderate	High

Table 23.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Potential for frost action	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In				
214D3:						
Hosmer	Fragipan	20-36	Weakly cemented	High	Moderate	High
301B:						
Grantsburg	Fragipan	24-40	Weakly cemented	High	High	High
301C2:						
Grantsburg	Fragipan	24-40	Weakly cemented	High	High	High
301C3:						
Grantsburg	Fragipan	24-40	Weakly cemented	High	High	High
301D2:						
Grantsburg	Fragipan	24-40	Weakly cemented	High	High	High
301D3:						
Grantsburg	Fragipan	24-40	Weakly cemented	High	High	High
335B:						
Robbs	Fragipan	20-40	Weakly cemented	High	High	High
339C:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
339D:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
339D2:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
339F:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
340C2:						
Zanesville	Fragipan	19-32	Weakly cemented	High	Moderate	High
	Lithic bedrock	40-80	Indurated			
	Paralithic bedrock	40-80	Strongly cemented			
340C3:						
Zanesville	Fragipan	17-32	Weakly cemented	High	Moderate	High
	Lithic bedrock	40-80	Indurated			
	Paralithic bedrock	40-80	Strongly cemented			
340D:						
Zanesville	Fragipan	20-32	Weakly cemented	High	Moderate	High
	Lithic bedrock	40-80	Indurated			
	Paralithic bedrock	40-80	Strongly cemented			

Table 23.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
340D2:						
Zanesville--------	Fragipan	19-32	Weakly cemented	High	Moderate	High
	Lithic bedrock	40-80	Indurated			
	Paralithic bedrock	40-80	Strongly cemented			
340D3:						
Zanesville--------	Fragipan	17-32	Weakly cemented	High	Moderate	High
	Lithic bedrock	40-80	Indurated			
	Paralithic bedrock	40-80	Strongly cemented			
477C2:						
Winfield----------	---	---	---	High	Moderate	Moderate
691D:						
Beasley-----------	Paralithic bedrock	36-60	Strongly cemented	None	Moderate	Moderate
691F:						
Beasley-----------	Paralithic bedrock	36-60	Strongly cemented	None	Moderate	Moderate
793F:						
Berks-------------	Lithic bedrock	20-40	Indurated	Low	Low	High
Muskingum---------	Lithic bedrock	20-40	Indurated	Moderate	Low	High
	Paralithic bedrock	20-40	Strongly cemented			
Weikert-----------	Lithic bedrock	10-20	Indurated	Moderate	Moderate	Moderate
793G:						
Berks-------------	Lithic bedrock	20-40	Indurated	Low	Low	High
Muskingum---------	Lithic bedrock	20-40	Indurated	Moderate	Low	High
	Paralithic bedrock	20-40	Strongly cemented			
Weikert-----------	Lithic bedrock	10-20	Indurated	Moderate	Moderate	Moderate
801B:						
Orthents, silty---	---	---	---	High	High	Moderate
802D:						
Orthents, loamy---	---	---	---	Moderate	Moderate	Moderate
802F:						
Orthents, loamy---	---	---	---	Moderate	Moderate	Moderate
834F:						
Wellston----------	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
Westmore----------	Paralithic bedrock	48-80	Strongly cemented	High	High	Moderate
	Lithic bedrock	48-80	Indurated			

Table 23.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
864. Pits, quarries						
865. Pits, gravel						
940D2:						
Zanesville	Fragipan	19-32	Weakly cemented	High	Moderate	High
	Lithic bedrock	40-80	Indurated			
	Paralithic bedrock	40-80	Strongly cemented			
Westmore	Paralithic bedrock	48-80	Strongly cemented	High	High	Moderate
	Lithic bedrock	48-80	Indurated			
955F:						
Muskingum	Paralithic bedrock	20-40	Strongly cemented	Moderate	Low	High
	Lithic bedrock	20-40	Indurated			
Berks	Lithic bedrock	20-40	Indurated	Low	Low	High
955G:						
Muskingum	Paralithic bedrock	20-40	Strongly cemented	Moderate	Low	High
	Lithic bedrock	20-40	Indurated			
Berks	Lithic bedrock	20-40	Indurated	Low	Low	High
977F:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
Neotoma	Lithic bedrock	40-80	Indurated	Low	Low	Moderate
986D:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
Berks	Lithic bedrock	20-40	Indurated	Low	Low	High
986D2:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
Berks	Lithic bedrock	20-40	Indurated	Low	Low	High
986D3:						
Wellston	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
Berks	Lithic bedrock	20-40	Indurated	Low	Low	High

Table 23.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
986F:						
Wellston----------	Lithic bedrock	40-72	Indurated	High	Moderate	High
	Paralithic bedrock	40-72	Strongly cemented			
Berks-------------	Lithic bedrock	20-40	Indurated	Low	Low	High
1334A:						
Birds-------------	---	---	---	High	High	Moderate
1843A:						
Bonnie------------	---	---	---	High	High	High
Petrolia----------	---	---	---	High	High	Low
1846A:						
Karnak------------	---	---	---	High	High	Moderate
Cape--------------	---	---	---	High	High	High
3071A:						
Darwin------------	---	---	---	Moderate	High	Low
3108A:						
Bonnie------------	---	---	---	High	High	High
3180A:						
Dupo--------------	Strongly contrasting textural stratification	20-40	Noncemented	High	High	Moderate
3288A:						
Petrolia----------	---	---	---	High	High	Low
3331A:						
Haymond-----------	---	---	---	High	Low	Low
3333A:						
Wakeland----------	---	---	---	High	High	Low
3334A:						
Birds-------------	---	---	---	High	High	Moderate
3382A:						
Belknap-----------	---	---	---	High	High	High
3420A:						
Piopolis----------	---	---	---	High	High	High
3426A:						
Karnak------------	---	---	---	High	High	Moderate
7460A:						
Ginat-------------	---	---	---	High	High	High
7462A:						
Sciotoville-------	---	---	---	High	Moderate	High

Table 23.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
7462B:						
Sciotovillle------	---	---	---	High	Moderate	High
7462C2:						
Sciotoville-------	---	---	---	High	Moderate	High
7462C3:						
Sciotoville-------	---	---	---	High	Moderate	High
7462D2:						
Scitovillle-------	---	---	---	High	Moderate	High
7463B:						
Wheeling----------	---	---	---	Moderate	Low	Moderate
7463C2:						
Wheeling----------	---	---	---	Moderate	Low	Moderate
7711A:						
Hatfield----------	---	---	---	High	High	High
7711B:						
Hatfield----------	---	---	---	High	High	High
7711B2:						
Hatfield----------	---	---	---	High	High	High
8071A:						
Darwin------------	---	---	---	Moderate	High	Low
8072A:						
Sharon------------	---	---	---	High	Low	High
8108A:						
Bonnie------------	---	---	---	High	High	High
8180A:						
Dupo--------------	Strongly contrasting textural stratification	20-40	Noncemented	High	High	Moderate
8331A:						
Haymond-----------	---	---	---	High	Low	Low
8333A:						
Wakeland----------	---	---	---	High	High	Low
8382A:						
Belknap-----------	---	---	---	High	High	High
8420A:						
Piopolis----------	---	---	---	High	High	High
8426A:						
Karnak------------	---	---	---	High	High	Moderate
8427B:						
Burnside----------	Lithic bedrock	40-80	Indurated	Moderate	Low	High

Table 23.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Hardness		Uncoated steel	Concrete
		In				
8787A:						
Banlic	---	---	---	High	High	High
W.						
Water						

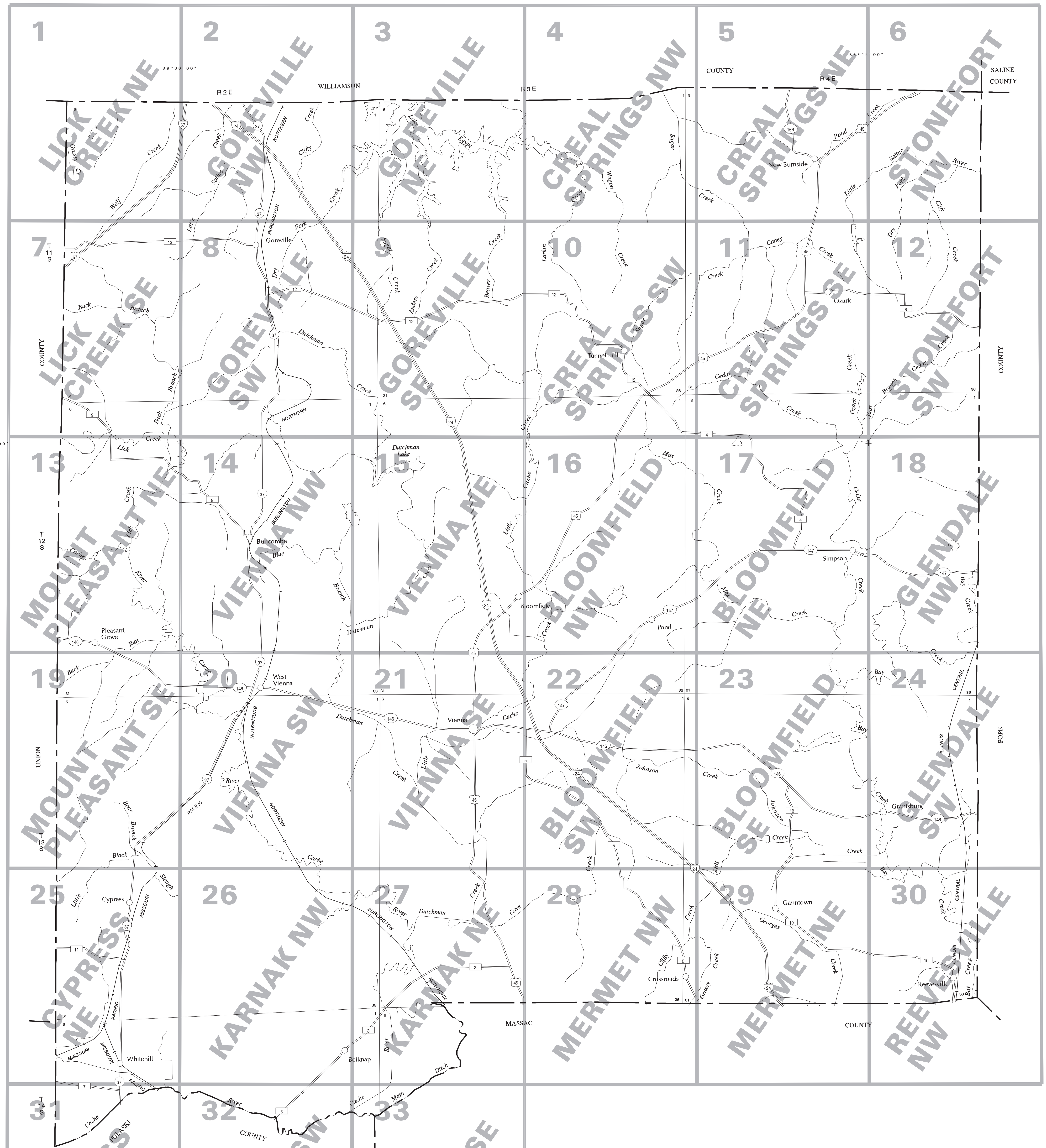
Table 24.—Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
*Banlic	Coarse-silty, mixed, active, mesic Fragiaquic Dystrudepts
Beasley	Fine, mixed, active, mesic Typic Hapludalfs
Belknap	Coarse-silty, mixed, active, acid, mesic Fluvaquentic Endoaquepts
Berks	Loamy-skeletal, mixed, active, mesic Typic Dystrudepts
Birds	Fine-silty, mixed, superactive, nonacid, mesic Typic Fluvaquents
Bonnie	Fine-silty, mixed, active, acid, mesic Typic Fluvaquents
Burnside	Loamy-skeletal, mixed, active, mesic Fluventic Dystrudepts
Cape	Fine, smectitic, acid, mesic Vertic Endoaquepts
Darwin	Fine, smectitic, mesic Fluvaquentic Vertic Endoaquolls
Dupo	Coarse-silty over clayey, mixed over smectitic, superactive, nonacid, mesic Aquic Udifluvents
*Ginat	Fine-silty, mixed, active, mesic Fragic Epiaqualfs
Grantsburg	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Hatfield	Fine-silty, mixed, active, mesic Aeric Fragic Epiaqualfs
Haymond	Coarse-silty, mixed, superactive, mesic Dystric Fluventic Eutrudepts
Hosmer	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs
Karnak	Fine, smectitic, nonacid, mesic Vertic Endoaquepts
Lamont	Coarse-loamy, mixed, superactive, mesic Typic Hapludalfs
Menfro	Fine-silty, mixed, superactive, mesic Typic Hapludalfs
Muskingum	Fine-loamy, mixed, semiactive, mesic Typic Dystrudepts
Neotoma	Loamy-skeletal, mixed, active, mesic Ultic Hapludalfs
Orthents, loamy	Fine-loamy, mixed, active, nonacid, mesic Typic Udorthents
Orthents, silty	Fine-silty, mixed, superactive, nonacid, mesic Typic Udorthents
Petrolia	Fine-silty, mixed, superactive, nonacid, mesic Fluvaquentic Endoaquepts
Piopolis	Fine-silty, mixed, active, acid, mesic Fluvaquentic Endoaquepts
Robbs	Fine-silty, mixed, active, mesic Aquic Fragiudalfs
*Sciotoville	Fine-loamy, mixed, active, mesic Fragiaquic Hapludalfs
Sharon	Coarse-silty, mixed, active, acid, mesic Oxyaquic Udifluvents
Stoy	Fine-silty, mixed, superactive, mesic Fragiaquic Hapludalfs
Wakeland	Coarse-silty, mixed, superactive, nonacid, mesic Aeric Fluvaquents
Weikert	Loamy-skeletal, mixed, active, mesic Lithic Dystrudepts
Wellston	Fine-silty, mixed, active, mesic Ultic Hapludalfs
Westmore	Fine-silty, mixed, active, mesic Typic Hapludalfs
Wheeling	Fine-loamy, mixed, active, mesic Ultic Hapludalfs
Winfield	Fine-silty, mixed, superactive, mesic Oxyaquic Hapludalfs
Zanesville	Fine-silty, mixed, active, mesic Oxyaquic Fragiudalfs

NRCS Accessibility Statement

The Natural Resources Conservation Service (NRCS) is committed to making its information accessible to all of its customers and employees. If you are experiencing accessibility issues and need assistance, please contact our Helpdesk by phone at 1-800-457-3642 or by e-mail at ServiceDesk-FTC@ftc.usda.gov. For assistance with publications that include maps, graphs, or similar forms of information, you may also wish to contact our State or local office. You can locate the correct office and phone number at http://offices.sc.egov.usda.gov/locator/app.



SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

N

INDEX TO MAP SHEETS
JOHNSON COUNTY, ILLINOIS

MILES

KILOMETERS

SCALE = 1:75000

SOIL LEGEND

Most map unit symbols consist of a combination of numbers and letters. The initial numbers represent the kind of soil. A capital letter following those numbers indicates the class of slope, except for the letter L, which indicates long duration flooding. A final number of 2 following the slope letter indicates that the soil is moderately eroded, and a number 3 indicates that it is severely eroded. Absence of a number following the slope class indicates that the soil is slightly eroded or non-eroded. Map units without a capital letter are miscellaneous areas

SYMBOL	NAME
79B	Menfro silt loam, 2 to 5 percent slopes
79C2	Menfro silt loam, 5 to 10 percent slopes, eroded
79C3	Menfro silt loam, 5 to 10 percent slopes, severely eroded
79D2	Menfro silt loam, 10 to 18 percent slopes, eroded
79D3	Menfro silt loam, 10 to 18 percent slopes, severely eroded
79E2	Menfro silt loam, 18 to 25 percent slopes, eroded
79E3	Menfro silt loam, 18 to 25 percent slopes, severely eroded
79F	Menfro silt loam, 25 to 35 percent slopes
99G	Sandstone and Limestone Rock Land, 35 to 90 percent slopes
164A	Stoy silt loam, 0 to 2 percent slopes
164B	Stoy silt loam, 2 to 5 percent slopes
175A	Lamont fine sandy loam, 0 to 2 percent slopes
175B	Lamont fine sandy loam, 2 to 5 percent slopes
175C2	Lamont fine sandy loam, 5 to 10 percent slopes, eroded
214B	Hosmer silt loam, 2 to 5 percent slopes
214C2	Hosmer silt loam, 5 to 10 percent slopes, eroded
214C3	Hosmer silt loam, 5 to 10 percent slopes, severely eroded
214D2	Hosmer silt loam, 10 to 18 percent slopes, eroded
214D3	Hosmer silt loam, 10 to 18 percent slopes, severely eroded
301B	Grantsburg silt loam, 2 to 5 percent slopes
301C2	Grantsburg silt loam, 5 to 10 percent slopes, eroded
301C3	Grantsburg silt loam, 5 to 10 percent slopes, severely eroded
301D2	Grantsburg silt loam, 10 to 18 percent slopes, eroded
301D3	Grantsburg silt loam, 10 to 18 percent slopes, severely eroded
335B	Robbs silt loam, 1 to 4 percent slopes
339C	Wellston silt loam, 5 to 10 percent slopes
339D	Wellston silt loam, 10 to 18 percent slopes
339D2	Wellston silt loam, 10 to 18 percent slopes, eroded
339F	Wellston silt loam, 18 to 35 percent slopes
340C2	Zanesville silt loam, 5 to 10 percent slopes, eroded
340C3	Zanesville silt loam, 5 to 10 percent slopes, severely eroded
340D	Zanesville silt loam, 10 to 18 percent slopes
340D2	Zanesville silt loam, 10 to 18 percent slopes, eroded
340D3	Zanesville silt loam, 10 to 18 percent slopes, severely eroded
477C2	Winfield silt loam, 5 to 10 percent slopes, eroded
691D	Beasley silt loam, 10 to 18 percent slopes
691F	Beasley silt loam, 18 to 35 percent slopes
793F	Berks, Muskingum, and Weikert soils, 18 to 35 percent slopes
793G	Berks, Muskingum, and Weikert soils, 35 to 70 percent slopes
801B	Orthents, silty, undulating
802D	Orthents, loamy, hilly
802F	Orthents, loamy, hilly and very hilly
834F	Wellston-Westmore silt loams, 18 to 35 percent slopes
864	Pits, quarries
865	Pits, gravel

SYMBOL	NAME
940D2	Zanesville-Westmore silt loams, 10 to 18 percent slopes, eroded
955F	Muskingum and Berks soils, 18 to 35 percent slopes
955G	Muskingum and Berks soils, 35 to 70 percent slopes
977F	Wellston-Neotoma complex, 18 to 35 percent slopes
986D	Wellston-Berks complex, 10 to 18 percent slopes
986D2	Wellston-Berks complex, 10 to 18 percent slopes, eroded
986D3	Wellston-Berks complex, 10 to 18 percent slopes, severely eroded
986F	Wellston-Berks complex, 18 to 35 percent slopes
1334A	Birds silt loam, undrained, 0 to 2 percent slopes, frequently flooded
1843A	Bonnie and Petrolia soils, undrained, 0 to 2 percent slopes, frequently flooded
1846A	Karnak and Cape silty clays, undrained, 0 to 2 percent slopes, frequently flooded
3071A	Darwin silty clay, 0 to 2 percent slopes, frequently flooded
3108A	Bonnie silt loam, 0 to 2 percent slopes, frequently flooded
3180A	Dupo silt loam, 0 to 2 percent slopes, frequently flooded
3288A	Petrolia silty clay loam, 0 to 2 percent slopes, frequently flooded
3331A	Haymond silt loam, 0 to 3 percent slopes, frequently flooded
3333A	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded
3334A	Birds silt loam, 0 to 2 percent slopes, frequently flooded
3382A	Belknap silt loam, 0 to 2 percent slopes, frequently flooded
3420A	Piopolis silty clay loam, 0 to 2 percent slopes, frequently flooded
3426A	Karnak silty clay, 0 to 2 percent slopes, frequently flooded
7460A	Ginat silt loam, 0 to 2 percent slopes, rarely flooded
7462A	Sciotoville silt loam, 0 to 2 percent slopes, rarely flooded
7462B	Sciotoville silt loam, 2 to 5 percent slopes, rarely flooded
7462C2	Sciotoville silt loam, 5 to 10 percent slopes, eroded, rarely flooded
7462C3	Sciotoville silt loam, 5 to 10 percent slopes, severely eroded, rarely flooded
7462D2	Sciotoville silt loam, 10 to 18 percent slopes, eroded, rarely flooded
7463B	Wheeling silt loam, 2 to 5 percent slopes, rarely flooded
7463C2	Wheeling silt loam, 5 to 10 percent slopes, eroded, rarely flooded
7711A	Hatfield silt loam, 0 to 2 percent slopes, rarely flooded
7711B	Hatfield silt loam, 2 to 5 percent slopes, rarely flooded
7711B2	Hatfield silt loam, 2 to 5 percent slopes, eroded, rarely flooded
8071A	Darwin silty clay, 0 to 2 percent slopes, occasionally flooded
8072A	Sharon silt loam, 0 to 3 percent slopes, occasionally flooded
8108A	Bonnie silt loam, 0 to 2 percent slopes, occasionally flooded
8180A	Dupo silt loam, 0 to 2 percent slopes, occasionally flooded
8331A	Haymond silt loam, 0 to 3 percent slopes, occasionally flooded
8333A	Wakeland silt loam, 0 to 2 percent slopes, occasionally flooded
8382A	Belknap silt loam, 0 to 2 percent slopes, occasionally flooded
8420A	Piopolis silty clay loam, 0 to 2 percent slopes, occasionally flooded
8426A	Karnak silty clay, 0 to 2 percent slopes, occasionally flooded
8427B	Burnside silt loam, 1 to 4 percent slopes, occasionally flooded
8787A	Banlic silt loam, 0 to 2 percent slopes, occasionally flooded
W	Water

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline & neatline
- Previously Published Survey

OTHER BOUNDARY (label)

- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER (section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

- Divided roads
- Other roads
- Trail

ROAD EMBLEM & DESIGNATIONS

- Interstate — 173 — 79 345
- Federal — 287 — 410 224
- State — 52 — 52 347
- County, farm or ranch — 1283

RAILROAD

POWER TRANSMISSION LINE

PIPELINE

FENCE

LEVEES

- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS

- Medium or Small

LANDFORM FEATURES

- Prominent hill or peak
- Soil Sample Site

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house (omit in urban areas)
- Church
- School
- Other Religion (label) — Mt Carmel
- Located object (label) — Ranger Station
- Tank (label) — Petroleum
- Lookout Tower
- Oil and/or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS

- Perennial, double line
- Perennial, single line — Label only
- Intermittent — Label only
- Drainage end — Label only

DRAINAGE AND IRRIGATION

- Double-line canal (label) — CANAL
- Perennial drainage and/or irrigation ditch — Label only
- Intermittent drainage and/ or irrigation ditch — Label only

SMALL LAKES, PONDS AND RESERVOIRS

- Perennial water
- Miscellaneous water
- Flood pool line — FLOOD POOL LINE

MISCELLANEOUS WATER FEATURES

- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS — 75C 79C2

LANDFORM FEATURES

ESCARPMENTS

- Bedrock
- Other than bedrock
- Short steep slope
- Gully
- Depression, closed
- Sinkhole

EXCAVATIONS

PITS

- Borrow pits
- Gravel pit
- Mine or quarry
- Landfill

MISCELLANEOUS SURFACE FEATURES

- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
LICK CREEK NE QUADRANGLE
SHEET NUMBER 1 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

2 GOREVILLE NW
7 LICK CREEK SE
8 GOREVILLE SW

INDEX TO ADJOINING 3.75 MAPS

LICK CREEK NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
GOREVILLE NW QUADRANGLE
SHEET NUMBER 2 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

1 LICK CREEK NE
3 GOREVILLE NE
7 LICK CREEK SE
8 GOREVILLE SW
9 GOREVILLE SE

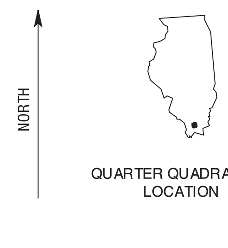
INDEX TO ADJOINING 3.75 MAPS

GOREVILLE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

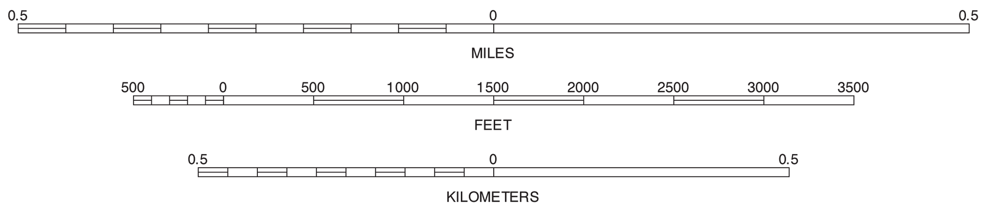
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



2	■	4
8	9	10

2 GOREVILLE NW
4 CREAL SPRINGS NW
8 GOREVILLE SW
9 GOREVILLE SE
10 CREAL SPRINGS SW

INDEX TO ADJOINING 3.75 MAPS

GOREVILLE NE, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 3 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
CREAL SPRINGS NW QUADRANGLE
SHEET NUMBER 4 OF 33

88° 52′30″ | 88° 48′45″
37° 37′30″ | 37° 33′45″

R. 3 E. | R. 4 E.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

3		5
9	10	11

3 GOREVILLE NE
5 CREAL SPRINGS NE
9 GOREVILLE SE
10 CREAL SPRINGS SW
11 CREAL SPRINGS SE

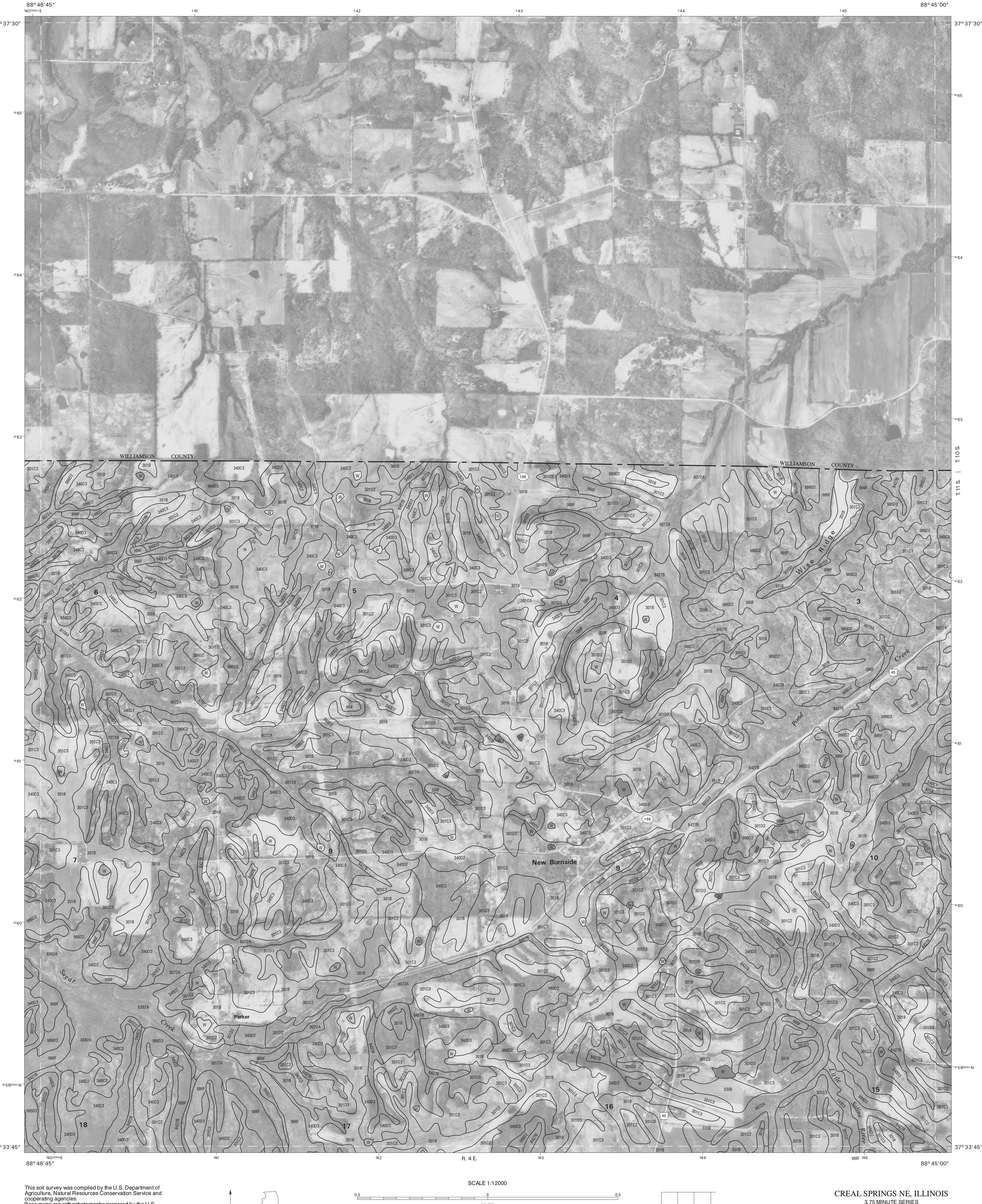
INDEX TO ADJOINING 3.75 MAPS

CREAL SPRINGS NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

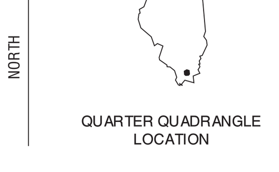
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
CREAL SPRINGS NE QUADRANGLE
SHEET NUMBER 5 OF 33



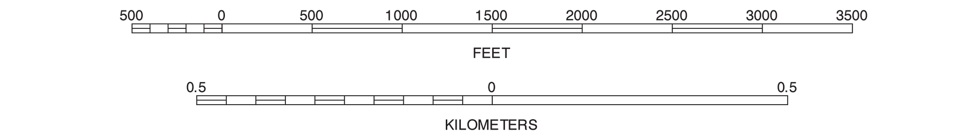
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

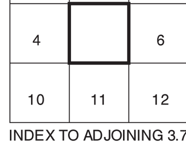
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000





4 CREAL SPRINGS NW
6 STONEFORT NW
10 CREAL SPRINGS SW
11 CREAL SPRINGS SE
12 STONEFORT SW

INDEX TO ADJOINING 3.75 MAPS

CREAL SPRINGS NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 33

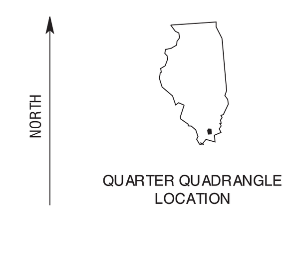
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

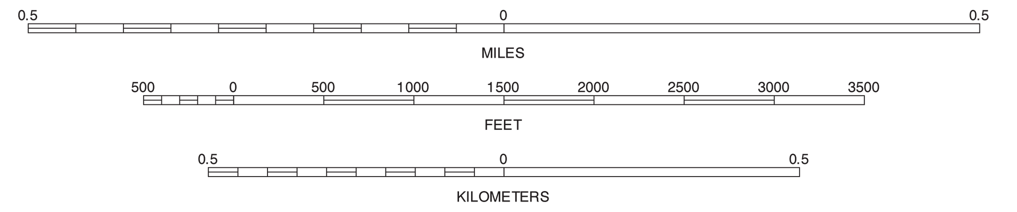
JOHNSON COUNTY, ILLINOIS
STONEFORT NW QUADRANGLE
SHEET NUMBER 6 OF 33

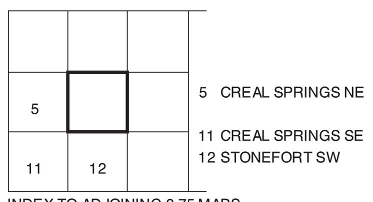
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:12000





STONEFORT NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 6 OF 33

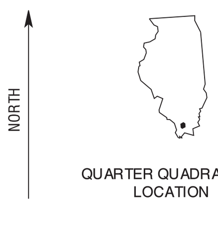
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
LICK CREEK SE QUADRANGLE
SHEET NUMBER 7 OF 33

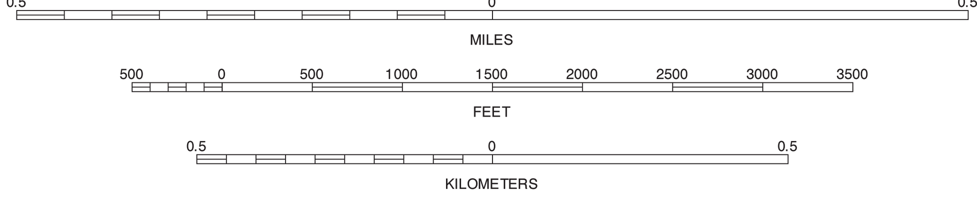
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

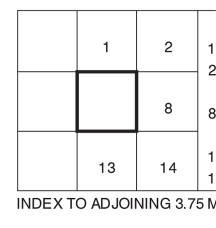
North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000





1 LICK CREEK NE
2 GOREVILLE NW
8 GOREVILLE SW
13 MOUNT PLEASANT NE
14 VIENNA NW

INDEX TO ADJOINING 3.75 MAPS

LICK CREEK SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 7 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
GOREVILLE SW QUADRANGLE
SHEET NUMBER 8 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

1 LICK CREEK NE
2 GOREVILLE NW
3 GOREVILLE NE
7 LICK CREEK SE
9 GOREVILLE SE
13 MOUNT PLEASANT NE
14 VIENNA NW
15 VIENNA NE

INDEX TO ADJOINING 3.75 MAPS

GOREVILLE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

88° 56′15″ 37° 33′45″ R. 2 E. | R. 3 E. 88° 52′30″ 37° 33′45″

37° 30′00″ 88° 56′15″ 37° 30′00″ 88° 52′30″

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

2	3	4
8		10
14	15	16

2 GOREVILLE NW
3 GOREVILLE NE
4 CREAL SPRINGS NW
8 GOREVILLE SW
10 CREAL SPRINGS SW
14 VIENNA NW
15 VIENNA NE
16 BLOOMFIELD NW

INDEX TO ADJOINING 3.75 MAPS

GOREVILLE SE, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 9 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
CREAL SPRINGS SW QUADRANGLE
SHEET NUMBER 10 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

3	4	5
9		11
15	16	17

3 GOREVILLE NE
4 CREAL SPRINGS NW
5 CREAL SPRINGS NE
9 GOREVILLE SE
11 CREAL SPRINGS SE
15 VIENNA NE
16 BLOOMFIELD NW
17 BLOOMFIELD NE

INDEX TO ADJOINING 3.75 MAPS

CREAL SPRINGS SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 10 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
CREAL SPRINGS SE QUADRANGLE
SHEET NUMBER 11 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

4	5	6
10		12
16	17	18

4 CREAL SPRINGS NW
5 CREAL SPRINGS NE
6 STONEFORT NW
10 CREAL SPRINGS SW
12 STONEFORT SW
16 BLOOMFIELD NW
17 BLOOMFIELD NE
18 GLENDALE NW

INDEX TO ADJOINING 3.75 MAPS

CREAL SPRINGS SE, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 11 OF 33

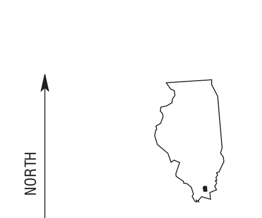
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

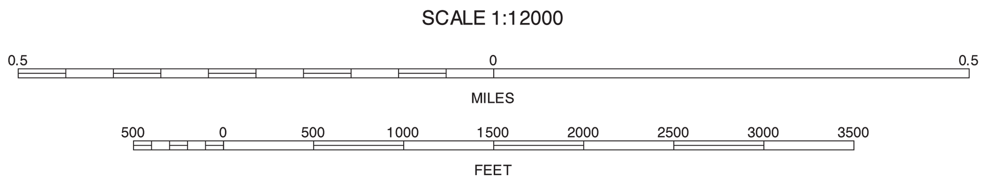
JOHNSON COUNTY, ILLINOIS
STONEFORT SW QUADRANGLE
SHEET NUMBER 12 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:12000



5	6	
11		
17	18	

5 CREAL SPRINGS NE
6 STONEFORT NW
11 CREAL SPRINGS SE
17 BLOOMFIELD NE
18 GLENDALE NW

INDEX TO ADJOINING 3.75 MAPS

STONEFORT SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 12 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
MOUNT PLEASANT NE QUADRANGLE
SHEET NUMBER 13 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

7	8	
	■	14
19	20	

7 LICK CREEK SE
8 GOREVILLE SW
14 VIENNA NW
19 MOUNT PLEASANT SE
20 VIENNA SW

INDEX TO ADJOINING 3.75 MAPS

MOUNT PLEASANT NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 13 OF 33

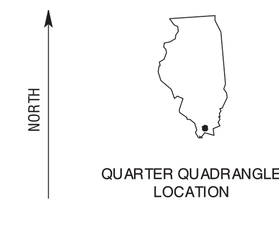
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
VIENNA NW QUADRANGLE
SHEET NUMBER 14 OF 33

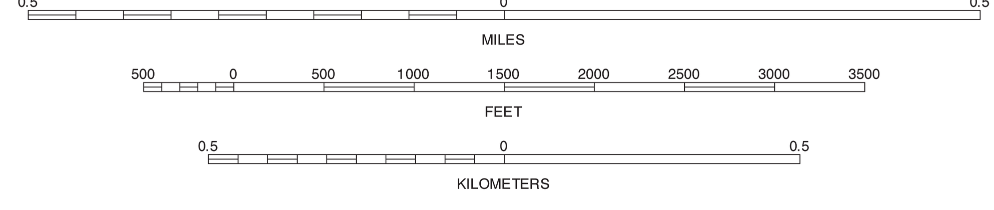
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



7	8	9
13		15
19	20	21

7 LICK CREEK SE
8 GOREVILLE SW
9 GOREVILLE SE
13 MOUNT PLEASANT NE
15 VIENNA NE
19 MOUNT PLEASANT SE
20 VIENNA SW
21 VIENNA SE

INDEX TO ADJOINING 3.75 MAPS

VIENNA NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

88° 56′15″ R. 2 E. | R. 3 E. 88° 52′30″

37° 30′00″ 37° 30′00″

37° 26′15″ 37° 26′15″

88° 56′15″ 88° 52′30″

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

8	9	10
14		16
20	21	22

8 GOREVILLE SW
9 GOREVILLE SE
10 CREAL SPRINGS SW
14 VIENNA NW
16 BLOOMFIELD NW
20 VIENNA SW
21 VIENNA SE
22 BLOOMFIELD SW

INDEX TO ADJOINING 3.75 MAPS

VIENNA NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 15 OF 33

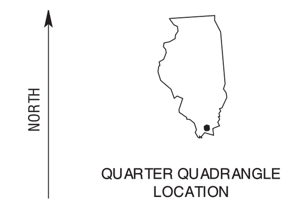
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
BLOOMFIELD NW QUADRANGLE
SHEET NUMBER 16 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

9	10	11
15		17
21	22	23

9 GOREVILLE SE
10 CREAL SPRINGS SW
11 CREAL SPRINGS SE
15 VIENNA NE
17 BLOOMFIELD NE
21 VIENNA SE
22 BLOOMFIELD SW
23 BLOOMFIELD SE

INDEX TO ADJOINING 3.75 MAPS

BLOOMFIELD NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 33

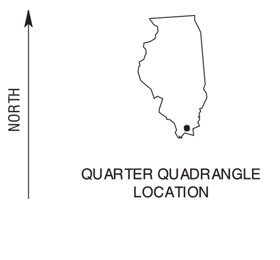
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
BLOOMFIELD NE QUADRANGLE
SHEET NUMBER 17 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

10	11	12
16		18
22	23	24

10 CREAL SPRINGS SW
11 CREAL SPRINGS SE
12 STONEFORT SW
16 BLOOMFIELD NW
18 GLENDALE NW
22 BLOOMFIELD SW
23 BLOOMFIELD SE
24 GLENDALE SW

INDEX TO ADJOINING 3.75 MAPS

BLOOMFIELD NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

11	12	
17	■	
23	24	

11 CREAL SPRINGS SE
12 STONEFORT SW
17 BLOOMFIELD NE
23 BLOOMFIELD SE
24 GLENDALE SW

INDEX TO ADJOINING 3.75 MAPS

GLENDALE NW, ILLINOIS

3.75 MINUTE SERIES
SHEET NUMBER 18 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

89° 03′45″ 89° 00′00″
37° 26′15″ 37° 26′15″

37° 22′30″ 37° 22′30″
89° 03′45″ 89° 00′00″

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

	13	14
	■	20
	25	26

13 MOUNT PLEASANT NE
14 VIENNA NW
20 VIENNA SW
25 CYPRESS NE
26 KARNAK NW

INDEX TO ADJOINING 3.75 MAPS

MOUNT PLEASANT SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
VIENNA SW QUADRANGLE
SHEET NUMBER 20 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

13	14	15
19		21
25	26	27

13 MOUNT PLEASANT NE
14 VIENNA NW
15 VIENNA NE
19 MOUNT PLEASANT SE
21 VIENNA SE
25 CYPRESS NE
26 KARNAK NW
27 KARNAK NE

INDEX TO ADJOINING 3.75 MAPS

VIENNA SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 20 OF 33

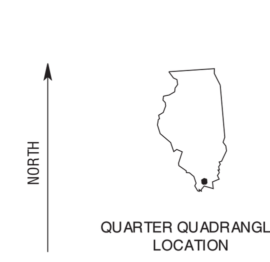
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
VIENNA SE QUADRANGLE
SHEET NUMBER 21 OF 33

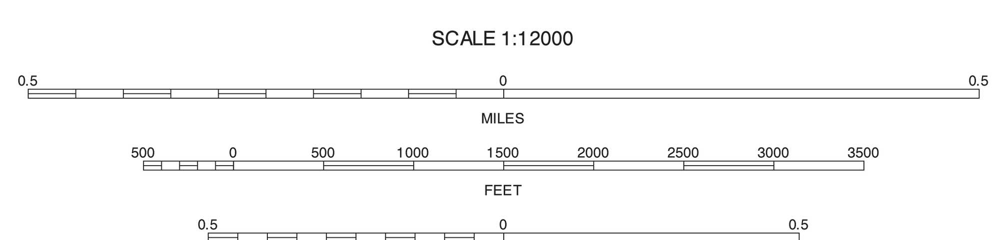
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



14	15	16
20		22
26	27	28

14 VIENNA NW
15 VIENNA NE
16 BLOOMFIELD NW
20 VIENNA SW
22 BLOOMFIELD SW
26 KARNAK NW
27 KARNAK NE
28 MERMET NW

INDEX TO ADJOINING 3.75 MAPS

VIENNA SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 21 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
BLOOMFIELD SW QUADRANGLE
SHEET NUMBER 22 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

15	16	17
21		23
27	28	29

15 VIENNA NE
16 BLOOMFIELD NW
17 BLOOMFIELD NE
21 VIENNA SE
23 BLOOMFIELD SE
27 KARNAK NE
28 MERMET NW
29 MERMET NE

INDEX TO ADJOINING 3.75 MAPS

BLOOMFIELD SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 22 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
BLOOMFIELD SE QUADRANGLE
SHEET NUMBER 23 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

16	17	18
22		24
28	29	30

16 BLOOMFIELD NW
17 BLOOMFIELD NE
18 GLENDALE NW
22 BLOOMFIELD SW
24 GLENDALE SW
28 MERMET NW
29 MERMET NE
30 REEVESVILLE NW

INDEX TO ADJOINING 3.75 MAPS

BLOOMFIELD SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 23 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
GLENDALE SW QUADRANGLE
SHEET NUMBER 24 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

17	18	
23		
29	30	

17 BLOOMFIELD NE
18 GLENDALE NW
23 BLOOMFIELD SE
29 MERMET NE
30 REEVESVILLE NW

INDEX TO ADJOINING 3.75 MAPS

GLENDALE SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
CYPRESS NE QUADRANGLE
SHEET NUMBER 25 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

19 MOUNT PLEASANT SE
20 VIENNA SW
26 KARNAK NW
31 CYPRESS SE
32 KARNAK SW

CYPRESS NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 25 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
KARNAK NW QUADRANGLE
SHEET NUMBER 26 OF 33

SCALE 1:12000

MILES

FEET

KILOMETERS

NORTH

QUARTER QUADRANGLE LOCATION

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

19	20	21
25		27
31	32	33

19 MOUNT PLEASANT SE
20 VIENNA SW
21 VIENNA SE
25 CYPRESS NE
27 KARNAK NE
31 CYPRESS SE
32 KARNAK SW
33 KARNAK SE

INDEX TO ADJOINING 3.75 MAPS

KARNAK NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 26 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
KARNAK NE QUADRANGLE
SHEET NUMBER 27 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

20	21	22
26		28
32	33	

20 VIENNA SW
21 VIENNA SE
22 BLOOMFIELD SW
26 KARNAK NW
28 MERMET NW
32 KARNAK SW
33 KARNAK SE

INDEX TO ADJOINING 3.75 MAPS

KARNAK NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 27 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

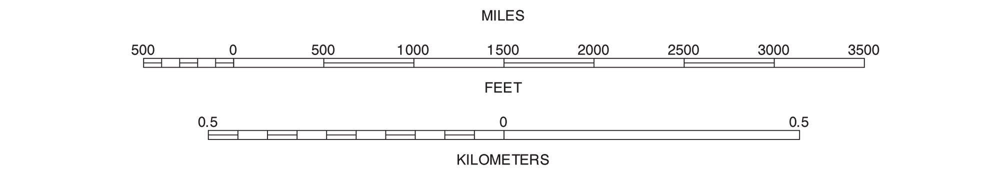
JOHNSON COUNTY, ILLINOIS
MERMET NW QUADRANGLE
SHEET NUMBER 28 OF 33

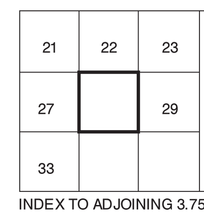
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000





21 VIENNA SE
22 BLOOMFIELD SW
23 BLOOMFIELD SE
27 KARNAK NE
29 MERMET NE
33 KARNAK SE

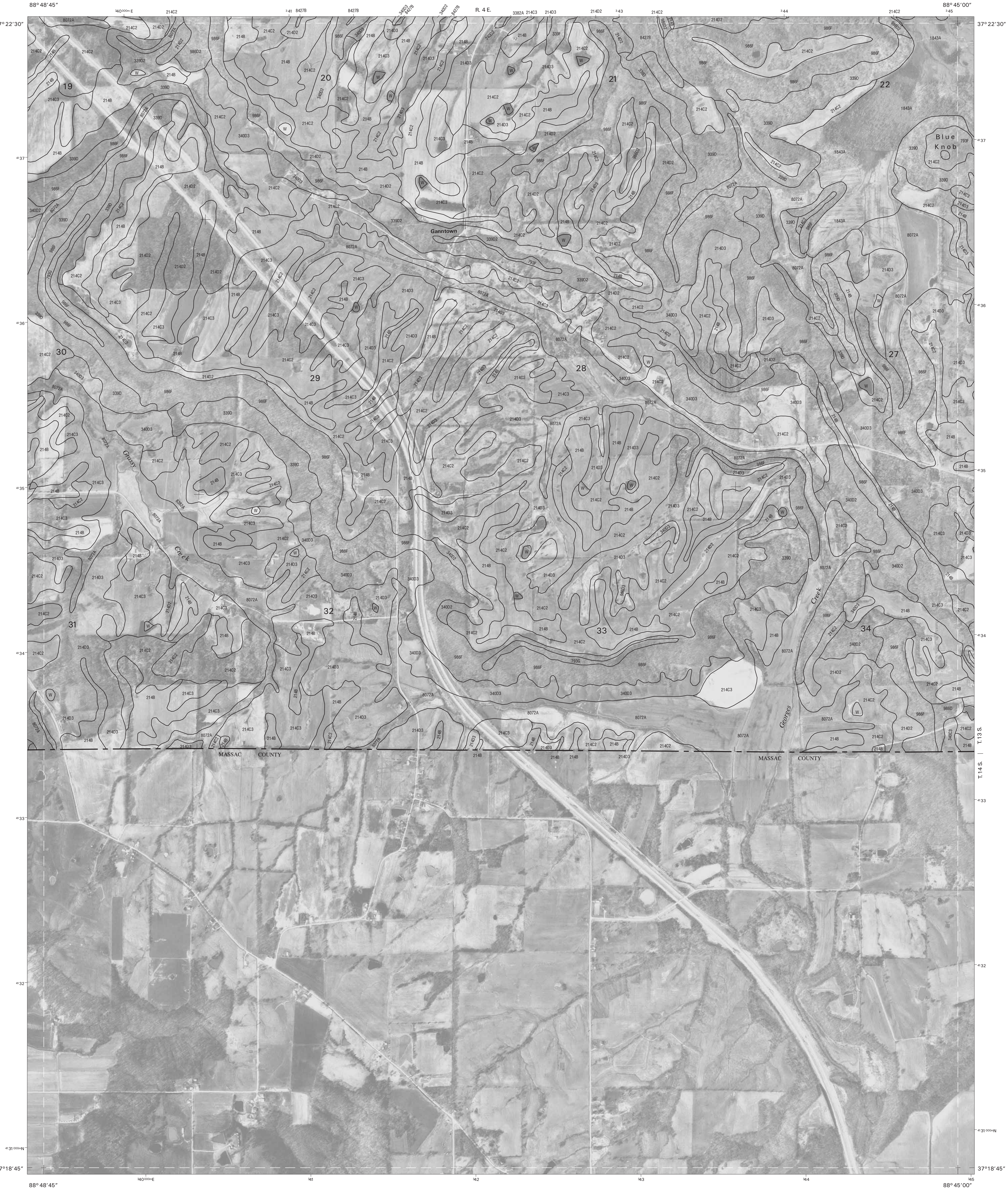
INDEX TO ADJOINING 3.75 MAPS

MERMET NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 28 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

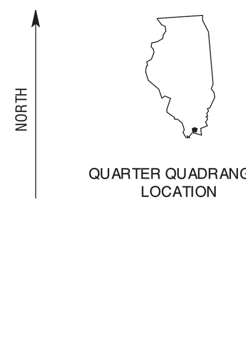
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
MERMET NE QUADRANGLE
SHEET NUMBER 29 OF 33



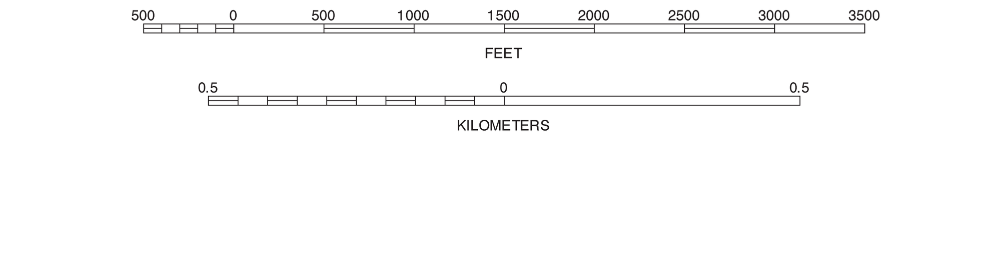
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



22	23	24
28		30

22 BLOOMFIELD SW
23 BLOOMFIELD SE
24 GLENDALE SW
28 MERMET NW
30 REEVESVILLE NW

INDEX TO ADJOINING 3.75 MAPS

MERMET NE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 29 OF 33

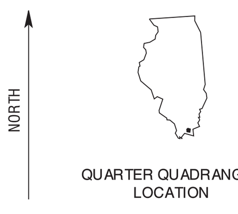
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
REEVESVILLE NW QUADRANGLE
SHEET NUMBER 30 OF 33

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES 0.5 0 0.5

FEET 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS 0.5 0 0.5

23	24	
29		

23 BLOOMFIELD SE
24 GLENDALE SW
29 MERMET NE

INDEX TO ADJOINING 3.75 MAPS

REEVESVILLE NW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 33

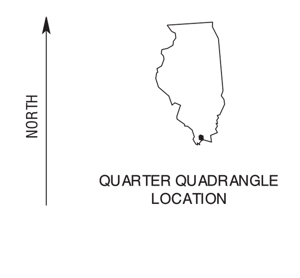
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
CYPRESS SE QUADRANGLE
SHEET NUMBER 31 OF 33

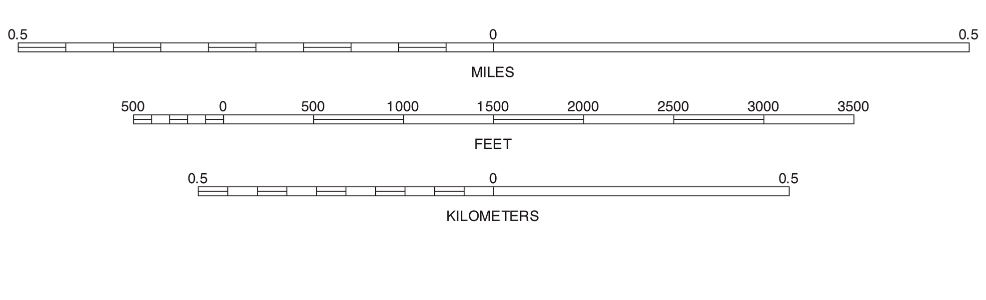
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

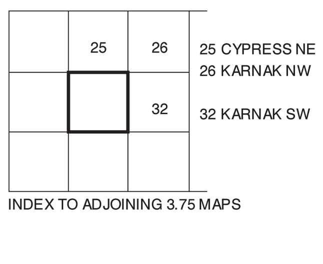
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000





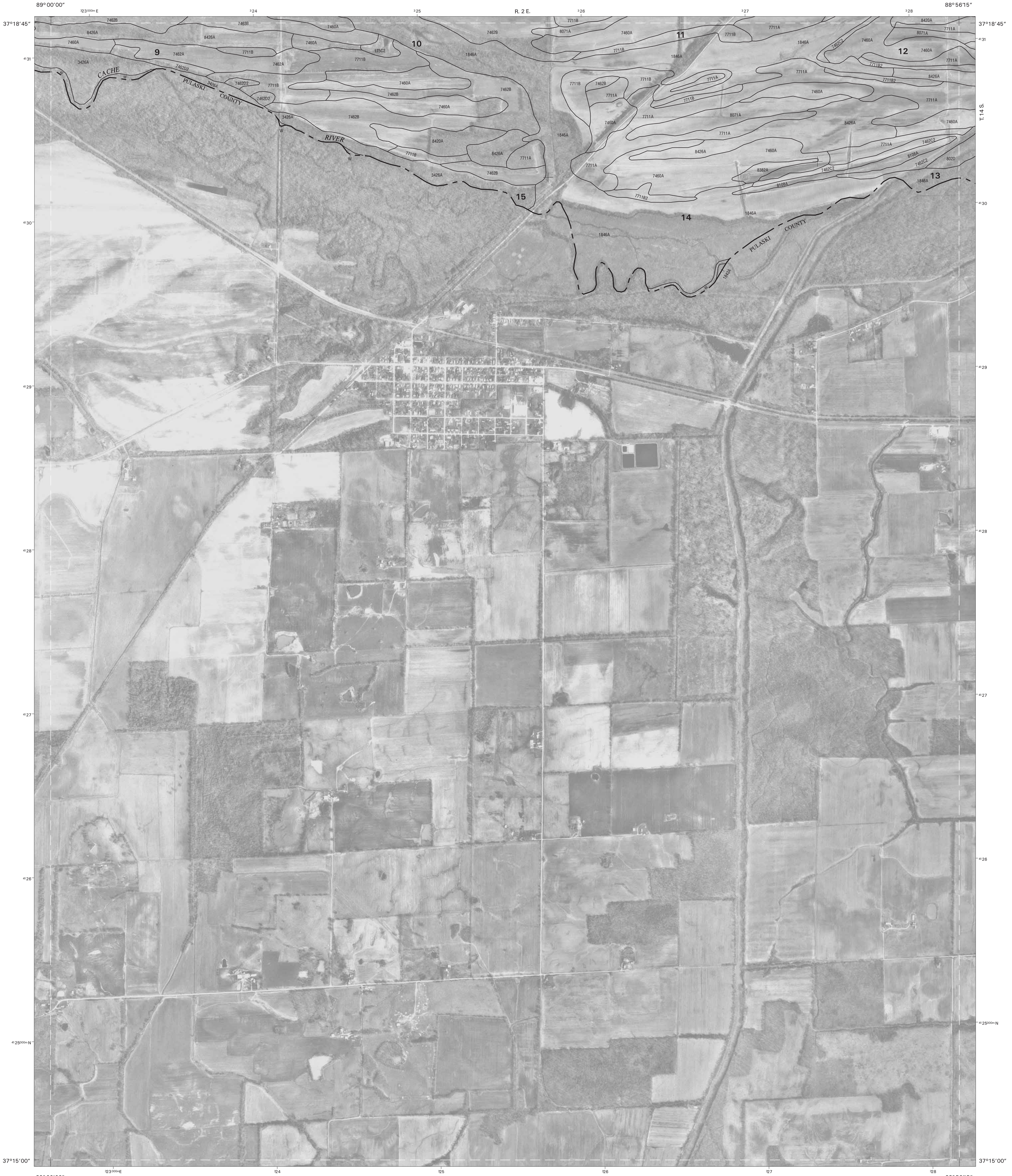
INDEX TO ADJOINING 3.75 MAPS

CYPRESS SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
KARNAK SW QUADRANGLE
SHEET NUMBER 32 OF 33



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid
1000-meter ticks: Universal Transverse Mercator, zone 16.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

25 CYPRESS NE
26 KARNAK NW
27 KARNAK NE
31 CYPRESS SE
33 KARNAK SE

INDEX TO ADJOINING 3.75 MAPS

KARNAK SW, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 32 OF 33

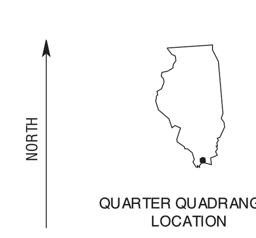
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

JOHNSON COUNTY, ILLINOIS
KARNAK SE QUADRANGLE
SHEET NUMBER 33 OF 33

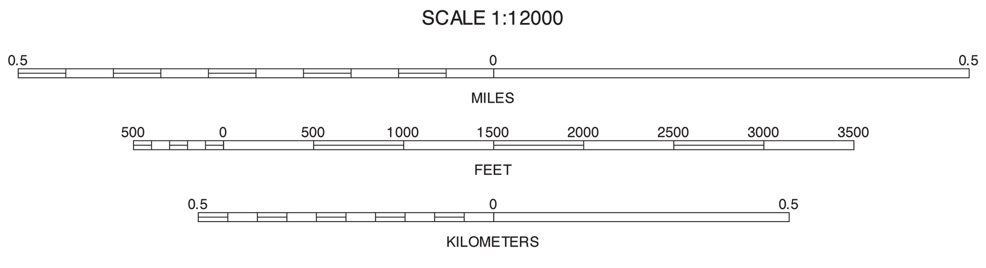
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service and cooperating agencies.
Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1998 - 1999 aerial photography.

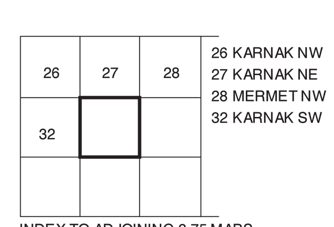
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000





INDEX TO ADJOINING 3.75 MAPS

KARNAK SE, ILLINOIS
3.75 MINUTE SERIES
SHEET NUMBER 33 OF 33

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.